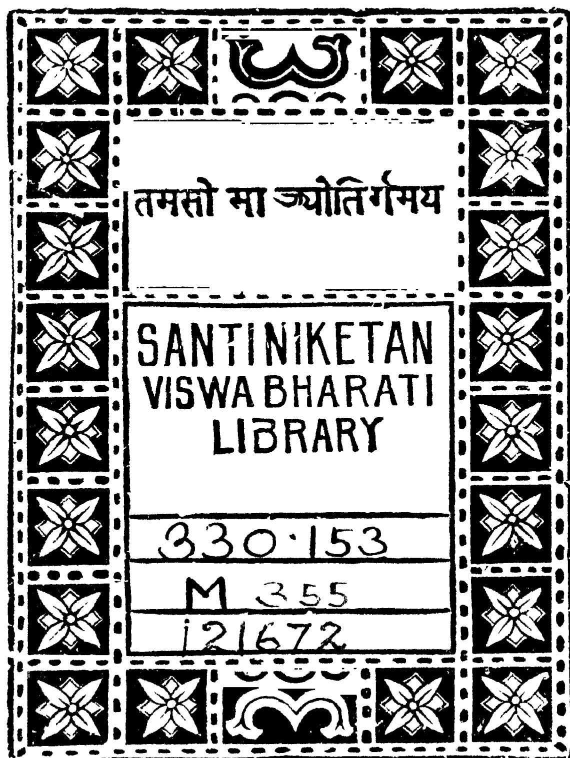


PRINCIPLES
OF
ECONOMICS

PRINCIPLES
OF
ECONOMICS

An introductory volume

BY

ALFRED MARSHALL

FOURTH EDITION

Natura non facit saltum

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PREFACE TO THE FIRST EDITION

ECONOMIC conditions are constantly changing, and each generation looks at its own problems in its own way. In England, as well as on the Continent and in America, Economic studies are being more vigorously pursued now than ever before; but all this activity has only shown the more clearly that Economic science is, and must be, one of slow and continuous growth. Some of the best work of the present generation has indeed appeared at first sight to be antagonistic to that of earlier writers; but when it has had time to settle down into its proper place, and its rough edges have been worn away, it has been found to involve no real breach of continuity in the development of the science. The new doctrines have supplemented the older, have extended, developed, and sometimes corrected them, and often have given them a different tone by a new distribution of emphasis; but very seldom have subverted them.

The present treatise is an attempt to present a modern version of old doctrines with the aid of the new work, and with reference to the new problems, of our own age. Its general scope and purpose are indicated in Book I; at the end of which a short account is given of what are taken to be the chief subjects of economic inquiry, and the chief practical issues on which that inquiry has a bearing. In accordance with English traditions, it is held that the function of the science is to collect, arrange and analyse economic facts, and to apply the knowledge, gained by observation and experience, in determining what are likely to be the immediate and ultimate effects of various groups of causes; and it is held that the Laws of Economics are statements of tendencies expressed in the indicative mood, and not ethical precepts in the imperative. Economic laws and reasonings in fact are merely a part of the material which Conscience and Common-sense have to turn to account in solving practical problems, and in laying down rules which may be a guide in life.

But ethical forces are among those of which the economist has to take account. Attempts have indeed been made to construct an abstract science with regard to the actions of an "economic man," who is under no ethical influences and who pursues pecuniary gain warily and energetically, but mechanically and selfishly. But they have not been successful, nor even thoroughly carried out. For

they have never really treated the economic man as perfectly selfish: no one could be relied on better to endure toil and sacrifice with the unselfish desire to make provision for his family; and his normal motives have always been tacitly assumed to include the family affections. But if they include these, why should they not include all other altruistic motives the action of which is so far uniform in any class at any time and place, that it can be reduced to general rule? There seems to be no reason; and in the present book normal action is taken to be that which may be expected, under certain conditions, from the members of an industrial group; and no attempt is made to exclude the influence of any motives, the action of which is regular, merely because they are altruistic. If the book has any special character of its own, that may perhaps be said to lie in the prominence which it gives to this and other applications of the Principle of Continuity.

This principle is applied not only to the ethical quality of the motives by which a man may be influenced in choosing his ends, but also to the sagacity, the energy and the enterprise with which he pursues those ends. Thus stress is laid on the fact that there is a continuous gradation from the actions of "city men," which are based on deliberate and far-reaching calculations, and are executed with vigour and ability, to those of ordinary people who have neither the power nor the will to conduct their affairs in a business-like way. The normal willingness to save, the normal willingness to undergo a certain exertion for a certain pecuniary reward, or the normal alertness to seek the best markets in which to buy and sell, or to search out the most advantageous occupation for oneself or for one's children—all these and similar phrases must be relative to the members of a particular class at a given place and time: but, when that is once understood, the theory of normal value is applicable to the actions of the unbusiness-like classes in the same way, though not with the same precision of detail, as to those of the merchant or banker.

And as there is no sharp line of division between conduct which is normal, and that which has to be provisionally neglected as abnormal, so there is none between normal values and "current" or "market" or "occasional" values. The latter are those values in which the accidents of the moment exert a preponderating influence; while normal values are those which would be ultimately attained, if the economic conditions under view had time to work out undisturbed their full effect. But there is no impassable gulf between these two; they shade into one another by continuous gradations. The values which we may regard as normal if we are thinking of the changes

from hour to hour on a Produce Exchange, do but indicate current variations with regard to the year's history : and the normal values with reference to the year's history are but current values with reference to the history of the century. For the element of Time, which is the centre of the chief difficulty of almost every economic problem, is itself absolutely continuous : Nature knows no absolute partition of time into long periods and short; but the two shade into one another by imperceptible gradations, and what is a short period for one problem, is a long period for another.

Thus for instance the greater part, though not the whole, of the distinction between Rent and Interest on capital turns on the length of the period which we have in view. That which is rightly regarded as interest on "free" or "floating" capital, or on new investments of capital, is more properly treated as a sort of rent—a *Quasi-rent* it is called below—on old investments of capital. And there is no sharp line of division between floating capital and that which has been "sunk" for a special branch of production, nor between new and old investments of capital; each group shades into the other gradually. And thus even the rent of land is seen, not as a thing by itself, but as the leading species of a large genus; though indeed it has peculiarities of its own which are of vital importance from the point of view of theory as well as of practice.

Again, though there is a sharp line of division between man himself and the appliances which he uses; and though the supply of, and the demand for, human efforts and sacrifices have peculiarities of their own, which do not attach to the supply of, and the demand for, material goods; yet, after all, these material goods are themselves generally the result of human efforts and sacrifices. The theories of the values of labour, and of the things made by it, cannot be separated : they are parts of one great whole; and what differences there are between them even in matters of detail, turn out on inquiry to be, for the most part, differences of degree rather than of kind. As, in spite of the great differences in form between birds and quadrupeds, there is one Fundamental Idea running through all their frames, so the general theory of the equilibrium of demand and supply is a Fundamental Idea running through the frames of all the various parts of the central problem of Distribution and Exchange.[1]

[1] In the *Economics of Industry* published by my wife and myself in 1879 an endeavour was made to show the nature of this fundamental unity. A short provisional account of the relations of demand and supply was given before the theory of Distribution; and then this one scheme of general reasoning was applied in succession to the earnings of labour, the interest on capital and the Earnings of Management. But the drift of this arrangement was not made sufficiently clear; and on Professor Nicholson's suggestion, more prominence has been given to it in the present volume.

Another application of the Principle of Continuity is to the use of terms. There has always been a temptation to classify economic goods in clearly defined groups, about which a number of short and sharp propositions could be made, to gratify at once the student's desire for logical precision, and the popular liking for dogmas that have the air of being profound and are yet easily handled. But great mischief seems to have been done by yielding to this temptation, and drawing broad artificial lines of division where Nature has made none. The more simple and absolute an economic doctrine is, the greater will be the confusion which it brings into attempts to apply economic doctrines to practice, if the dividing lines to which it refers cannot be found in real life. There is not in real life a clear line of division between things that are and are not Capital, or that are and are not Necessaries, or again between labour that is and is not Productive.

The notion of continuity with regard to development is common to all modern schools of economic thought, whether the chief influences acting on them are those of biology, as represented by the writings of Herbert Spencer; or of history and philosophy, as represented by Hegel's *Philosophy of History*, and by more recent ethico-historical studies on the Continent and elsewhere. These two kinds of influences have affected, more than any other, the substance of the views expressed in the present book; but their form has been most affected by mathematical conceptions of continuity, as represented in Cournot's *Principes Mathématiques de la Théorie des Richesses*. He taught that it is necessary to face the difficulty of regarding the various elements of an economic problem,—not as determining one another in a chain of causation, *A* determining *B*, *B* determining *C*, and so on—but as all mutually determining one another. Nature's action is complex: and nothing is gained in the long run by pretending that it is simple, and trying to describe it in a series of elementary propositions.

Under the guidance of Cournot, and in a less degree of von Thünen, I was led to attach great importance to the fact that our observations of nature, in the moral as in the physical world, relate not so much to aggregate quantities, as to increments of quantities, and that in particular the demand for a thing is a continuous function, of which the "marginal" [1] increment is, in stable equilibrium, balanced against the corresponding increment of its cost of

[1] The term "marginal" increment I borrowed from von Thünen's *Der isolirte Staat*, 1826-63, and it is now commonly used by German economists. When Jevons' Theory appeared, I adopted his word "final"; but I have been gradually convinced that "marginal" is the better.

production. It is not easy to get a clear full view of continuity in this aspect without the aid either of mathematical symbols or of diagrams. The use of the latter requires no special knowledge, and they often express the conditions of economic life more accurately, as well as more easily, than do mathematical symbols; and therefore they have been applied as supplementary illustrations in the foot-notes of the present volume. The argument in the text is never dependent on them; and they may be omitted; but experience seems to show that they give a firmer grasp of many important principles than can be got without their aid; and that there are many problems of pure theory, which no one who has once learnt to use diagrams will willingly handle in any other way.

The chief use of pure mathematics in economic questions seems to be in helping a person to write down quickly, shortly and exactly, some of his thoughts for his own use: and to make sure that he has enough, and only enough, premisses for his conclusions (i.e. that his equations are neither more nor less in number than his unknowns). But when a great many symbols have to be used, they become very laborious to any one but the writer himself. And though Cournot's genius must give a new mental activity to everyone who passes through his hands, and mathematicians of calibre similar to his may use their favourite weapons in clearing a way for themselves to the centre of some of those difficult problems of economic theory, of which only the outer fringe has yet been touched; yet it seems doubtful whether any one spends his time well in reading lengthy translations of economic doctrines into mathematics, that have not been made by himself. A few specimens of those applications of mathematical language which have proved most useful for my own purposes have, however, been added in an Appendix.

September 1890.

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BOOK I

PRELIMINARY SURVEY

CHAPTER I

INTRODUCTION

§ 1. POLITICAL ECONOMY or ECONOMICS is a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of wellbeing. I, I, 1.

Economics is a study of wealth and a part of the study of man.

Thus it is on the one side a study of wealth; and on the other, and more important side, a part of the study of man. For man's character has been moulded by his every-day work, and the material resources which he thereby procures, more than by any other influence unless it be that of his religious ideals; and the two great forming agencies of the world's history have been the religious and the economic. Here and there the ardour of the military or the artistic spirit has been for a while predominant: but religious and economic influences have nowhere been displaced from the front rank even for a time; and they have nearly always been more important than all others put together. Religious motives are more intense than economic, but their direct action seldom extends over so large a part of life. For the business by which a person earns his livelihood generally fills his thoughts during by far the greater part of those hours in which his mind is at its best; during them his character is being formed by the way in which he uses his faculties in his work, by the thoughts and the feelings which it suggests, and by his relations to his associates in work, his employers or his employees.

Man's character formed by his daily work.

Poverty causes degradation.

And very often the influence exerted on a person's character by the amount of his income is hardly less, if it is less, than that exerted by the way in which it is earned. It may make little difference to the fulness of life of a family whether its yearly income is £1000 or £5000; but it makes a very great difference whether the income is £30 or £150: for with £150 the family has, with £30 it has not, the material conditions of a complete life. It is true that in religion, in

I, I, 2. the family affections and in friendship, even the poor may find scope for many of those faculties which are the source of the highest happiness. But the conditions which surround extreme poverty, especially in densely crowded places, tend to deaden the higher faculties. Those who have been called the Residuum of our large towns have little opportunity for friendship; they know nothing of the decencies and the quiet, and very little even of the unity of family life; and religion often fails to reach them. No doubt their physical, mental, and moral ill-health is partly due to other causes than poverty: but this is the chief cause.

And, in addition to the Residuum, there are vast numbers of people both in town and country who are brought up with insufficient food, clothing, and house-room; whose education is broken off early in order that they may go to work for wages; who thenceforth are engaged during long hours in exhausting toil with imperfectly nourished bodies, and have therefore no chance of developing their higher mental faculties. Their life is not necessarily unhealthy or unhappy. Rejoicing in their affections towards God and man, and perhaps even possessing some natural refinement of feeling, they may lead lives that are far less incomplete than those of many, who have more material wealth. But, for all that, their poverty is a great and almost unmixed evil to them. Even when they are well, their weariness often amounts to pain, while their pleasures are few; and when sickness comes, the suffering caused by poverty increases tenfold. And, though a contented spirit may go far towards reconciling them to these evils, there are others to which it ought not to reconcile them. Overworked and undertaught, weary and careworn, without quiet and without leisure, they have no chance of making the best of their mental faculties.

May we not outgrow the belief that poverty is necessary?

Although then some of the evils which commonly go with poverty are not its necessary consequences; yet, broadly speaking, "the destruction of the poor is their poverty," and the study of the causes of poverty is the study of the causes of the degradation of a large part of mankind.

§ 2. Slavery was regarded by Aristotle as an ordinance of nature, and so probably was it by the slaves themselves in olden time. The dignity of man was proclaimed by the Christian religion: it has been asserted with increasing vehemence during the last hundred years: but, only through the spread of education during quite recent times, are we beginning to feel the full import of the phrase. Now at last we are setting ourselves seriously to inquire whether it is necessary that there should be any so-called "lower classes" at all: that is,

whether there need be large numbers of people doomed from their birth to hard work in order to provide for others the requisites of a refined and cultured life; while they themselves are prevented by their poverty and toil from having any share or part in that life.

The hope that poverty and ignorance may gradually be extinguished, derives indeed much support from the steady progress of the working classes during the nineteenth century. The steam-engine has relieved them of much exhausting and degrading toil; wages have risen; education has been improved and become more general; the railway and the printing-press have enabled members of the same trade in different parts of the country to communicate easily with one another, and to undertake and carry out broad and far-seeing lines of policy; while the growing demand for intelligent work has caused the artisan classes to increase so rapidly that they now outnumber those whose labour is entirely unskilled. A great part of the artisans have ceased to belong to the "lower classes" in the sense in which the term was originally used; and some of them already lead a more refined and noble life than did the majority of the upper classes even a century ago.

This progress had done more than anything else to give practical interest to the question whether it is really impossible that all should start in the world with a fair chance of leading a cultured life, free from the pains of poverty and the stagnating influences of excessive mechanical toil; and this question is being pressed to the front by the growing earnestness of the age.

The question cannot be fully answered by economic science. For the answer depends partly on the moral and political capabilities of human nature, and on these matters the economist has no special means of information: he must do as others do, and guess as best he can. But the answer depends in a great measure upon facts and inferences, which are within the province of economics; and this it is which gives to economic studies their chief and their highest interest.

Causes of the tardy growth of economic science.

§ 3. It might have been expected that a science, which deals with questions so vital for the wellbeing of mankind, would have engaged the attention of many of the ablest thinkers of every age, and be now well advanced towards maturity. But the fact is that the number of scientific economists has always been small relatively to the difficulty of the work to be done; so that the science is still almost in its infancy. One cause of this is that the bearing of economics on the higher wellbeing of man has been overlooked. Indeed, a science which has wealth for its subject-matters, is often repugnant at first sight to many students; for those who do most to

I, I, 4.

advance the boundaries of knowledge, seldom care much about the possession of wealth for its own sake.

Changefulness of economic conditions.

But a more important cause is that many of those conditions of industrial life, and of those methods of production, distribution and consumption, with which modern economic science is concerned, are themselves only of recent date. It is indeed true that the change in substance is in some respects not so great as the change in outward form; and much more of modern economic theory, than at first appears, can be adapted to the conditions of backward races. But unity in substance, underlying many varieties of form, is not easy to detect; and changes in form have had the effect of making writers in all ages profit less than they otherwise might have done by the work of their predecessors.

The economic conditions of modern life, though more complex, are in many ways more definite than those of earlier times. Business is more clearly marked off from other concerns; the rights of individuals as against others and as against the community are more sharply defined; and above all the emancipation from custom, and the growth of free activity, of constant forethought and restless enterprise, have given a new precision and a new prominence to the causes that govern the relative values of different things and different kinds of labour.

The fundamental characteristic of modern industrial life is not competition,

§ 4. It is often said that the modern forms of industrial life are distinguished from the earlier by being more competitive. But this account is not quite satisfactory. The strict meaning of competition seems to be the racing of one person against another, with special reference to bidding for the sale or purchase of anything. This kind of racing is no doubt both more intense and more widely extended than it used to be: but it is only a secondary, and one might almost say, an accidental consequence from the fundamental characteristics of modern industrial life.

but self-reliance, independence, deliberate choice and forethought.

There is no one term that will express these characteristics adequately. They are, as we shall presently see, a certain independence and habit of choosing one's own course for oneself, a self-reliance; a deliberation and yet a promptness of choice and judgment, and a habit of forecasting the future and of shaping one's course with reference to distant aims. They may and often do cause people to compete with one another; but on the other hand they may tend, and just now indeed they are tending, in the direction of co-operation and combination of all kinds good and evil. But these tendencies towards collective ownership and collective action are quite different from those of earlier times, because they are the result

not of custom, not of any passive drifting into association with one's neighbours, but of free choice by each individual of that line of conduct which after careful deliberation seems to him the best suited for attaining his ends, whether they are selfish or unselfish. I, I, 4.

"Competition" implies too much as well as too little. Man is not more selfish than he was.

The term "competition" has gathered about it evil savour, and has come to imply a certain selfishness and indifference to the well-being of others. Now it is true that there is less deliberate selfishness in early than in modern forms of industry; but there is also less deliberate unselfishness. It is deliberateness, and not selfishness, that is the characteristic of the modern age.

For instance, while custom in a primitive society extends the limits of the family, and prescribes certain duties to one's neighbours which fall into disuse in a later civilization, it also prescribes an attitude of hostility to strangers. In a modern society the obligations of family kindness become more intense, though they are concentrated on a narrower area; and neighbours are put more nearly on the same footing with strangers. In ordinary dealings with both of them the standard of fairness and honesty is lower than in some of the dealings of a primitive people with their neighbours: but it is much higher than in their dealings with strangers. Thus it is the ties of neighbourhood alone that have been relaxed: the ties of family are in many ways stronger than before, family affection leads to much more self-sacrifice and devotion than it used to do; and sympathy with those who are strangers to us is a growing source of a kind of deliberate unselfishness, that never existed before the modern age. That country which is the birthplace of modern competition devotes a larger part of its income than any other to charitable uses, and spent twenty millions on purchasing the freedom of the slaves in the West Indies.

In every age poets and social reformers have tried to stimulate the people of their own time to a nobler life by enchanting stories of the virtues of the heroes of old. But neither the records of history nor the contemporary observation of backward races, when carefully studied, give any support to the doctrine that man is on the whole harder and harsher than he was; or that he was ever more willing than he is now to sacrifice his own happiness for the benefit of others in cases where custom and law have left him free to choose his own course. Among races, whose intellectual capacity seems not to have developed in any other direction, and who have none of the originating power of the modern business man, there will be found many who show an evil sagacity in driving a hard bargain in a market even with their neighbours. No traders are more unscrupulous in taking advantage

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of the necessities of the unfortunate than are the corn-dealers and money-lenders of the East.

Man is not more dishonest than he was.

Again, the modern era has undoubtedly given new openings for dishonesty in trade. The advance of knowledge has discovered new ways of making things appear other than they are, and has rendered possible many new forms of adulteration. The producer is now far removed from the ultimate consumer; and his wrong-doings are not visited with the prompt and sharp punishment which falls on the head of a person who, being bound to live and die in his native village, plays a dishonest trick on one of his neighbours. The opportunities for knavery are certainly more numerous than they were; but there is no reason for thinking that people avail themselves of a larger proportion of such opportunities than they used to do. On the contrary, modern methods of trade imply habits of trustfulness on the one side and a power of resisting temptation to dishonesty on the other, which do not exist among a backward people. Instances of simple truth and personal fidelity are met with under all social conditions: but those who have tried to establish a business of modern type in a backward country find that they can scarcely ever depend on the native population for filling posts of trust. It is even more difficult to dispense with imported assistance for work, which calls for a strong moral character, than for that which requires great skill and mental ability. Adulteration and fraud in trade were rampant in the middle ages to an extent that is very astonishing, when we consider the difficulties of wrong-doing without detection at that time.

Dreams of a past Golden Age are beautiful but misleading.

In every stage of civilization, in which the power of money has been prominent, poets in verse and prose have delighted to depict a past truly "Golden Age," before the pressure of mere material gold had been felt. Their idyllic pictures have been beautiful, and have stimulated noble imaginations and resolves; but they have had very little historical truth. Small communities with simple wants for which the bounty of nature has made abundant provisions, have indeed sometimes been nearly free from care about their material needs, and have not been tempted to sordid ambitions. But whenever we can penetrate to the inner life of a crowded population under primitive conditions in our own time, we find more want, more narrowness, and more hardness than was manifest at a distance: and we never find a more widely diffused comfort alloyed by less suffering than exists in the western world to-day. We ought therefore not to brand the forces, which have made modern civilization, by a name which suggests evil.

It is perhaps not reasonable that such a suggestion should attach to the term "competition"; but in fact it does. In fact, when competition is arraigned, its anti-social forms are made prominent; and care is seldom taken to inquire whether there are not other forms of it, which are so essential to the maintenance of energy and spontaneity, that their cessation might probably be injurious on the balance to social well being. The traders or producers, who find that a rival is offering goods at a lower price than will yield them a good profit, are angered at his intrusion, and complain of being wronged; even though it may be true that those who buy the cheaper goods are in greater need than themselves, and that the energy and resourcefulness of their rival is a social gain. In many cases the "regulation of competition" is a misleading term, that veils the formation of a privileged class of producers, who often use their combined force to frustrate the attempts of an able man to rise from a lower class than their own. Under the pretext of repressing anti-social competition, they deprive him of the liberty of carving out for himself a new career, where the services rendered by him to the consumers of the commodity would be greater than the injuries, that he inflicts on the relatively small group which objects to his competition.

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Modern competition is of two kinds, constructive and destructive.

If competition is contrasted with energetic co-operation in unselfish work for the public good, then even the best forms of competition are relatively evil; while its harsher and meaner forms are hateful. And in a world in which all men were perfectly virtuous, competition would be out of place; but so also would be private property and every form of private right. Men would think only of their duties; and no one would desire to have a larger share of the comforts and luxuries of life than his neighbours. Strong producers could easily bear a touch of hardship; so they would wish that their weaker neighbours, while producing less should consume more. Happy in this thought, they would work for the general good with all the energy, the inventiveness, and the eager initiative that belonged to them; and mankind would be victorious in contests with nature at every turn. Such is the Golden Age to which poets and dreamers may look forward. But in the responsible conduct of affairs, it is worse than folly to ignore the imperfections which still cling to human nature.

Even constructive competition is less beneficent than ideal altruistic co-operation.

History in general, and especially the history of socialistic ventures, shows that ordinary men are seldom capable of pure ideal altruism for any considerable time together; and that the exceptions are to be found only when the masterful fervour of a small band of

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religious enthusiasts makes material concerns to count for nothing in comparison with the higher faith.

No doubt men, even now, are capable of much more unselfish service than they generally render: and the supreme aim of the economist is to discover how this latent social asset can be developed most quickly, and turned to account most wisely. But he must not decry competition in general, without analysis: he is bound to retain a neutral attitude towards any particular manifestation of it until he is sure that, human nature being what it is, the restraint of competition would not be more anti-social in its working than the competition itself.

Economic Freedom.

We may conclude then that the term "competition" is not well suited to describe the special characteristics of industrial life in the modern age. We need a term that does not imply any moral qualities, whether good or evil, but which indicates the undisputed fact that modern business and industry are characterized by more self-reliant habits, more forethought, more deliberate and free choice. There is not any one term adequate for this purpose: but *Freedom of Industry and Enterprise*, or more shortly, *Economic Freedom*, points in the right direction; and it may be used in the absence of a better. Of course this deliberate and free choice may lead to a certain departure from individual freedom when co-operation or combination seems to offer the best route to the desired end. The questions how far these deliberate forms of association are likely to destroy the freedom in which they had their origin and how far they are likely to be conducive to the public weal, lie beyond the scope of the present volume.[1]

Rough sketches of the growth of economic freedom and of economic science are transferred from this Book to Appendices A and B.

§ 5. This introductory chapter was followed in earlier editions by two short sketches: the one related to the growth of free enterprise and generally of economic freedom, and the other to the growth of economic science. They have no claim to be systematic histories, however compressed; they aim only at indicating some landmarks on the routes by which economic structure and economic thought have travelled to their present position. They are now transferred to Appendices A and B at the end of this volume, partly because their full drift can best be seen after some acquaintance has been made with the subject-matter of economics; and partly because in the twenty years, which have elapsed since they were first written, public opinion as to the position which the study of economic and social science should hold in a liberal education has greatly developed. There is less need

[1] They occupy a considerable place in the forthcoming volumes on *Industry and Trade*.

I, I, 5.

now than formerly to insist that the economic problems of the present generation derive much of their subject-matter from technical and social changes that are of recent date, and that their form as well as their urgency assume throughout the effective economic freedom of the mass of the people.

The growth of economic freedom.

The relations of many ancient Greeks and Romans with the slaves of their households were genial and humane. But even in Attica the physical and moral wellbeing of the great body of the inhabitants was not accepted as a chief aim of the citizen. Ideals of life were high, but they concerned only a few: and the doctrine of value, which is full of complexities in the modern age, could then have been worked out on a plan; such as could be conceived to-day, only if nearly all manual work were superseded by automatic machines which required merely a definite allowance of steam-power and materials, and had no concern with the requirements of a full citizen's life. Much of modern economics might indeed have been anticipated in the towns of the Middle Ages, in which an intelligent and daring spirit was for the first time combined with patient industry. But they were not left to work out their career in peace; and the world had to wait for the dawn of the new economic era till a whole nation was ready for the ordeal of economic freedom.

The early roughness of economic freedom in England.

England especially was gradually prepared for the task; but towards the end of the eighteenth century, the changes, which had so far been slow and gradual, suddenly became rapid and violent. Mechanical inventions, the concentration of industries, and a system of manufacturing on a large scale for distant markets broke up the old traditions of industry, and left everyone to bargain for himself as best he might; and at the same time they stimulated an increase of population for which no provision had been made beyond standing-room in factories and workshops. Thus free competition, or rather, freedom of industry and enterprise, was set loose to run, like a huge untrained monster, its wayward course. The abuse of their new power by able but uncultured business men led to evils on every side; it unfitted mothers for their duties, it weighed down children with overwork and disease; and in many places it degraded the race. Meanwhile the kindly meant recklessness of the poor law did even more to lower the moral and physical energy of Englishmen than the hard-hearted recklessness of the manufacturing discipline: for by depriving the people of those qualities which would fit them for the new order of things, it increased the evil and diminished the good caused by the advent of free enterprise.

The growth of economic science.

And yet the time at which free enterprise was showing itself in

I, I, 5. an unnaturally harsh form, was the very time in which economists were most lavish in their praises of it. This was partly because they saw clearly, what we of this generation have in a great measure forgotten, the cruelty of the yoke of custom and rigid ordinance which it had displaced; and partly because the general tendency of Englishmen at the time was to hold that freedom in all matters, political and social, was worth having at every cost except the loss of security. But partly also it was that the productive forces which free enterprise was giving to the nation, were the only means by which it could offer a successful resistance to Napoleon. Economists therefore treated free enterprise not indeed as an unmixed good, but as a less evil than such regulation as was practicable at the time.

Adhering to the lines of thought that had been started chiefly by mediæval traders, and continued by French and English philosophers in the latter half of the eighteenth century, Ricardo and his followers developed a theory of the action of free enterprise (or, as they said, free competition), which contained many truths, that will be probably important so long as the world exists. Their work was wonderfully complete within the narrow area which it covered. But much of the best of it consists of problems relating to rent and the value of corn :—problems on the solution of which the fate of England just then seemed to depend; but many of which, in the particular form in which they were worked out by Ricardo, have very little direct bearing on the present state of things.

A good deal of the rest of their work was narrowed by its regarding too exclusively the peculiar condition of England at that time; and this narrowness has caused a reaction. So that now, when more experience, more leisure, and greater material resources have enabled us to bring free enterprise somewhat under control, to diminish its power of doing evil and increase its power of doing good, there is growing up among many economists a sort of spite against it. Some even incline to exaggerate its evils, and attribute to it the ignorance and suffering, which are the results either of tyranny and oppression in past ages, or of the misunderstanding and mismanagement of economic freedom.

Intermediate between these two extremes are the great body of economists who, working on parallel lines in many different countries, are bringing to their studies an unbiassed desire to ascertain the truth, and a willingness to go through with the long and heavy work by which alone scientific results of any value can be obtained. Varieties of mind, of temper, of training and of opportunities lead them to work in different ways, and to give their chief attention to

different parts of the problem. All are bound more or less to collect and arrange facts and statistics relating to past and present times; and all are bound to occupy themselves more or less with analysis and reasoning on the basis of those facts which are ready at hand: but some find the former task the more attractive and absorbing, and others the latter. This division of labour, however, implies not opposition, but harmony of purpose. The work of all adds something or other to that knowledge, which enables us to understand the influences exerted on the quality and tone of man's life by the manner in which he earns his livelihood, and by the character of that livelihood. I, I, 5.

CHAPTER II

THE SUBSTANCE OF ECONOMICS

I, II, 1.

The chief motives of business life can be measured indirectly in money.

§ 1. ECONOMICS is a study of men as they live and move and think in the ordinary business of life. But it concerns itself chiefly with those motives which affect, most powerfully and most steadily, man's conduct in the business part of his life. Everyone who is worth anything carries his higher nature with him into business; and, there as elsewhere, he is influenced by his personal affections, by his conceptions of duty and his reverence for high ideals. And it is true that the best energies of the ablest inventors and organizers of improved methods and appliances are stimulated by a noble emulation more than by any love of wealth for its own sake. But, for all that, the steadiest motive to ordinary business work is the desire for the pay which is the material reward of work. The pay may be on its way to be spent selfishly or unselfishly, for noble or base ends; and here the variety of human nature comes into play. But the motive is supplied by a definite amount of money: and it is this definite and exact money measurement of the steadiest motives in business life, which has enabled economics far to outrun every other branch of the study of man. Just as the chemist's fine balance has made chemistry more exact than most other physical sciences; so this economist's balance, rough and imperfect as it is, has made economics more exact than any other branch of social science. But of course economics cannot be compared with the exact physical sciences: for it deals with the ever changing and subtle forces of human nature.[1]

The advantage which economics has over other branches of social science appears then to arise from the fact that its special field of work gives rather larger opportunities for exact methods than any other branch. It concerns itself chiefly with those desires, aspirations and other affections of human nature, the outward manifestations of which appear as incentives to action in such a form that the force or quantity of the incentives can be estimated and measured with some approach to accuracy; and which therefore are in some

[1] Some remarks on the relation of economics to the sum total of social science will be found in Appendix C, 1, 2.

degree amenable to treatment by scientific machinery. An opening is made for the methods and the tests of science as soon as the force of a person's motives—*not* the motives themselves—can be approximately measured by the sum of money, which he will just give up in order to secure a desired satisfaction; or again by the sum which is just required to induce him to undergo a certain fatigue.

Even common pleasures and pains can be compared only through the strength of the incentives which they supply to action.

It is essential to note that the economist does not claim to measure any affection of the mind in itself, or directly; but only indirectly through its effect. No one can compare and measure accurately against one another even his own mental states at different times: and no one can measure the mental states of another at all except indirectly and conjecturally by their effects. Of course various affections belong to man's higher nature and others to his lower, and are thus different in kind. But, even if we confine our attention to mere physical pleasures and pains of the same kind, we find that they can only be compared indirectly by their effects. In fact, even this comparison is necessarily to some extent conjectural, unless they occur to the same person at the same time.

For instance the pleasures which two persons derive from smoking cannot be directly compared: nor can even those which the same person derives from it at different times. But if we find a man in doubt whether to spend a few pence on a cigar, or a cup of tea, or on riding home instead of walking home, then we may follow ordinary usage, and say that he expects from them equal pleasures.

If then we wish to compare even physical gratifications, we must do it not directly, but indirectly by the incentives which they afford to action. If the desires to secure either of two pleasures will induce people in similar circumstances each to do just an hour's extra work, or will induce men in the same rank of life and with the same means each to pay a shilling for it; we then may say that those pleasures are equal for our purposes, because the desires for them are equally strong incentives to action for persons under similar conditions.

and this indirect comparison can be applied to all classes of desire.

Thus measuring a mental state, as men do in ordinary life, by its motor-force or the incentive which it affords to action, no new difficulty is introduced by the fact that some of the motives of which we have to take account belong to man's higher nature, and others to his lower.

For suppose that the person, whom we saw doubting between several little gratifications for himself, had thought after a while of a poor invalid whom he would pass on his way home; and had spent some time in making up his mind whether he would choose a physical

I, II, 1.

gratification for himself, or would do a kindly act and rejoice in another's joy. As his desires turned now towards the one, now the other, there would be change in the quality of his mental states; and the philosopher is bound to study the nature of the change.

Economics follows the practice of ordinary discourse.

But the economist studies mental states rather through their manifestations than in themselves; and if he finds they afford evenly balanced incentives to action, he treats them *prima facie* as for his purpose equal. He follows indeed in a more patient and thoughtful way, and with greater precautions, what everybody is always doing every day in ordinary life. He does not attempt to weigh the real value of the higher affections of our nature against those of our lower: he does not balance the love for virtue against the desire for agreeable food. He estimates the incentives to action by their effects just in the same way as people do in common life. He follows the course of ordinary conversation, differing from it only in taking more precautions to make clear the limits of his knowledge as he goes. He reaches his provisional conclusions by observations of men in general under given conditions without attempting to fathom the mental and spiritual characteristics of individuals. But he does not ignore the mental and spiritual side of life. On the contrary, even for the narrower uses of economic studies, it is important to know whether the desires which prevail are such as will help to build up a strong and righteous character. And in the broader uses of those studies, when they are being applied to practical problems, the economist, like every one else, must concern himself with the ultimate aims of man, and take account of differences in real value between gratifications that are equally powerful incentives to action and have therefore equal economic measures. A study of these measures is only the starting-point of economics: but it is the starting-point.[1]

[1] The objections raised by some philosophers to speaking of two pleasures as equal, under any circumstances, seem to apply only to uses of the phrase other than those with which the economist is concerned. It has however unfortunately happened that the customary uses of economic terms have sometimes suggested the belief that economists are adherents of the philosophical system of Hedonism or of Utilitarianism. For, while they have generally taken for granted that the greatest pleasures are those which come with the endeavour to do one's duty, they have spoken of "pleasures" and "pains" as supplying the motives to all action; and they have thus brought themselves under the censure of those philosophers, with whom it is a matter of principle to insist that the desire to do one's duty is a different thing from a desire for the pleasure which, if one happens to think of the matter at all, one may expect from doing it; though perhaps it may be not incorrectly described as a desire for "self satisfaction" or "the satisfaction of the permanent self." (See for instance T. H. Green, *Prolegomena to Ethics*, pp. 165-6.)

It is clearly not the part of economics to appear to take a side in ethical controversy: and since there is a general agreement that all incentives to action, in so far as they are conscious desires at all, may without impropriety be spoken of shortly as desires for "satisfaction," it may perhaps be well to use this word instead of "pleasure," when occasion arises for referring to the aims of all desires, whether appertaining to

§ 2. There are several other limitations of the measurement of motive by money to be discussed. The first of these arises from the necessity of taking account of the variations in the amount of pleasure, or other satisfaction, represented by the same sum of money to different persons and under different circumstances. I, II, 2.

The same price measures different satisfactions even to persons with equal incomes;

A shilling may measure a greater pleasure (or other satisfaction) at one time than at another even for the same person; because money may be more plentiful with him, or because his sensibility may vary.[1] And persons whose antecedents are similar, and who are outwardly like one another, are often affected in very different ways by similar events. When, for instance, a band of city school children are sent out for a day's holiday in the country, it is probable that no two of them derive from it enjoyment exactly the same in kind, or equal in intensity. The same surgical operation causes different amounts of pain to different people. Of two parents who are, so far as we can tell, equally affectionate, one will suffer much more than the other from the loss of a favourite son. Some who are not very sensitive generally are yet specially susceptible to particular kinds of pleasure and pain; while differences in nature and education make one man's total capacity for pleasure or pain much greater than another's.

It would therefore not be safe to say that any two men with the same income derive equal benefit from its use; or that they would suffer equal pain from the same diminution of it. Although when a tax of £1 is taken from each of two persons having an income of £300 a-year, each will give up that £1 worth of pleasure (or other satisfaction) which he can most easily part with, i.e. each will give up what is measured to him by just £1; yet the intensities of the satisfaction given up may not be nearly equal.

but these differences may generally be

Nevertheless, if we take averages sufficiently broad to cause the personal peculiarities of individuals to counterbalance one another, the money which people of equal incomes will give to obtain a benefit

man's higher or lower nature. The simple antithesis to satisfaction is "dissatisfaction": but perhaps it may be well to use the shorter and equally colourless word "detriment" in its place.

It may however be noted that some followers of Bentham (though perhaps not Bentham himself) made this large use of "pain and pleasure" serve as a bridge by which to pass from individualistic Hedonism to a complete ethical creed, without recognizing the necessity for the introduction of an independent major premiss; and for such a premiss the necessity would appear to be absolute, although opinions will perhaps always differ as to its form. Some will regard it as the Categorical Imperative; while others will regard it as a simple belief that, whatever be the origin of our moral instincts, their indications are borne out by a verdict of the experience of mankind to the effect that true happiness is not to be had without self-respect, and that self-respect is to be had only on the condition of endeavouring so to live as to promote the progress of the human race.

[1] Compare Edgeworth's *Mathematical Psychics*.

I, II, 2.

neglected when we consider the average of large numbers of people.

or avoid an injury is a good measure of the benefit or injury. If there are a thousand persons living in Sheffield, and another thousand in Leeds, each with about £100 a-year, and a tax of £1 is levied on all of them; we may be sure that the loss of pleasure or other injury which the tax will cause in Sheffield is of about equal importance with that which it will cause in Leeds: and anything that increased all the incomes by £1 would give command over equivalent pleasures and other benefits in the two towns. This probability becomes greater still if all of them are adult males engaged in the same trade; and therefore presumably somewhat similar in sensibility and temperament, in taste and education. Nor is the probability much diminished, if we take the family as our unit, and compare the loss of pleasure that results from diminishing by £1 the income of each of a thousand families with incomes of £100 a-year in the two places.

The significance of a given price is greater for the poor than the rich.

Next we must take account of the fact that a stronger incentive will be required to induce a person to pay a given price for anything if he is poor than if he is rich. A shilling is the measure of less pleasure, or satisfaction of any kind, to a rich man than to a poor one. A rich man in doubt whether to spend a shilling on a single cigar, is weighing against one another smaller pleasures than a poor man, who is doubting whether to spend a shilling on a supply of tobacco that will last him for a month. The clerk with £100 a-year will walk to business in a much heavier rain than the clerk with £300 a-year; for the cost of a ride by tram or omnibus measures a greater benefit to the poorer man than to the richer. If the poorer man spends the money, he will suffer more from the want of it afterwards than the richer would. The benefit that is measured in the poorer man's mind by the cost is greater than that measured by it in the richer man's mind.

But this is not important in comparing two groups composed of rich and poor in like proportions.

But this source of error also is lessened when we are able to consider the actions and the motives of large groups of people. If we know, for instance, that a bank failure has taken £200,000 from the people of Leeds and £100,000 from those of Sheffield, we may fairly assume that the suffering caused in Leeds has been about twice as great as in Sheffield; unless indeed we have some special reason for believing that the shareholders of the bank in the one town were a richer class than those in the other; or that the loss of employment caused by it pressed in uneven proportions on the working classes in the two towns.

Increase of material means sometimes

By far the greater number of the events with which economics deals affect in about equal proportions all the different classes of society; so that if the money measures of the happiness caused by

two events are equal, it is reasonable and in accordance with common usage to regard the amounts of the happiness in the two cases as equivalent. And, further, as money is likely to be turned to the higher uses of life in about equal proportions, by any two large groups of people taken without special bias from any two parts of the western world, there is even some *primâ facie* probability that equal additions to their material resources will make about equal additions to the fulness of life, and the true progress of the human race.

a fair measure of real progress

§ 3. To pass to another point. When we speak of the measurement of desire by the action to which it forms the incentive, it is not to be supposed that we assume every action to be deliberate, and the outcome of calculation. For in this, as in every other respect, economics takes man just as he is in ordinary life: and in ordinary life people do not weigh beforehand the results of every action, whether the impulses to it come from their higher nature or their lower.[1]

Action is largely ruled by habit,

Now the side of life with which economics is specially concerned is that in which man's conduct is most deliberate, and in which he most often reckons up the advantages and disadvantages of any particular action before he enters on it. And further it is that side of his life in which, when he does follow habit and custom, and proceeds for the moment without calculation, the habits and customs themselves are most nearly sure to have arisen from a close and careful watching the advantages and disadvantages of different courses of conduct. There will not in general have been any formal reckoning up of two sides of a balance-sheet: but men going home from their day's work, or in their social meetings, will have said to one another, "It did not answer to do this, it would have been better to do that," and so on. What makes one course answer better than another, will not necessarily be a selfish gain, nor any material gain; and it will often have been argued that "though this or that plan saved a little trouble or a little money, yet it was not fair to others," and "it made one look mean," or "it made one feel mean."

especially as regards business conduct

[1] This is specially true of that group of gratifications, which is sometimes named "the pleasures of the chase." They include not only the light-hearted emulation of games and pastimes, of hunts and steeplechases, but the more serious contests of professional and business life: and they will occupy a good deal of our attention in discussions of the causes that govern wages and profits, and forms of industrial organization.

Some people are of wayward temperament, and give no good account even to themselves of the motives of their action. But if a man is steadfast and thoughtful, even his impulses are the products of habits which he has adopted more or less deliberately. And, whether these impulses are an expression of his higher nature or not; whether they spring from mandates of his conscience, the pressure of social connection, or the claims of his bodily wants, he yields a certain relative precedence to them without reflection now, because on previous occasions he has decided deliberately to yield that relative precedence. The predominant attractiveness of one course of action over others, even when not the result of calculation at the time, is the product of more or less deliberate decisions made by him before in somewhat similar cases.

I, II, 4.

It is true that when a habit or a custom, which has grown up under one set of conditions, influences action under other conditions, there is so far no exact relation between the effort and the end which is attained by it. In backward countries there are still many habits and customs similar to those that lead a beaver in confinement to build himself a dam; they are full of suggestiveness to the historian, and must be reckoned with by the legislator. But in business matters in the modern world such habits quickly die away.

Thus then the most systematic part of people's lives is generally that by which they earn their living. The work of all those engaged in any one occupation can be carefully observed; general statements can be made about it, and tested by comparison with the results of other observations; and numerical estimates can be framed as to the amount of money or general purchasing power that is required to supply a sufficient motive for them.

The unwillingness to postpone enjoyment, and thus to save for future use, is measured by the interest on accumulated wealth which just affords a sufficient incentive to save for the future. This measurement presents however some special difficulties, the study of which must be postponed.

The motives that lead to the pursuit of money may them selves be noble.

§ 4. Here, as elsewhere, we must bear in mind that the desire to make money does not itself necessarily proceed from motives of a low order, even when it is to be spent on oneself. Money is a means towards ends, and if the ends are noble, the desire for the means is not ignoble. The lad who works hard and saves all he can, in order to be able to pay his way afterwards at a University, is eager for money; but his eagerness is not ignoble. In short, money is general purchasing power, and is sought as a means to all kinds of ends, high as well as low, spiritual as well as material.[1]

And there is no truth in the common opinion that economics regards man as absorbed in a selfish pursuit of wealth.

Thus though it is true that "money" or "general purchasing power" or "command over material wealth," is the centre around which economic science clusters; this is so, not because money or material wealth is regarded as the main aim of human effort, nor even as affording the main subject-matter for the study of the economist, but because in this world of ours it is the one convenient means of measuring human motive on a large scale. If the older economists had made this clear, they would have escaped many

[1] See an admirable essay by Cliffe Leslie on *The Love of Money*. We do indeed hear of people who pursue money for its own sake without caring for what it will purchase, especially at the end of a long life spent in business: but in this as in other cases the habit of doing a thing is kept up after the purpose for which it was originally done has ceased to exist. The possession of wealth gives such people a feeling of power over their fellow-creatures, and insures them a sort of envious respect in which they find a bitter but strong pleasure.

grievous misrepresentations; and the splendid teachings of Carlyle and Ruskin as to the right aims of human endeavour and the right uses of wealth, would not then have been marred by bitter attacks on economics, based on the mistaken belief that that science had no concern with any motive except the selfish desire for wealth, or even that it inculcated a policy of sordid selfishness.[1]

The desire for money does not exclude other influences;

Again, when the motive to a man's action is spoken of as supplied by the money which he will earn, it is not meant that his mind is closed to all other considerations save those of gain. For even the most purely business relations of life assume honesty and good faith; while many of them take for granted, if not generosity, yet at least the absence of meanness, and the pride which every honest man takes in acquitting himself well. Again, much of the work by which people earn their living is pleasurable in itself; and there is truth in the contention of socialists that more of it might be made so. Indeed even business work, that seems at first sight unattractive, often yields a great pleasure by offering scope for the exercise of men's faculties, and for their instincts of emulation and of power. For just as a racehorse or an athlete strains every nerve to get in advance of his competitors, and delights in the strain; so a manufacturer or a trader is often stimulated much more by the hope of victory over his rivals than by the desire to add something to his fortune.[2]

such as the pleasure afforded by the work itself and the instinct of power.

Economists have always reckoned for advantages of an occupation other than material gain;

§ 5. It has indeed always been the practice of economists to take careful account of all the advantages which attract people generally towards an occupation, whether they appear in a money form or not. Other things being equal, people will prefer an occupation in which they do not need to soil their hands, in which they enjoy a good social position, and so on; and since these advantages affect, not indeed every one exactly in the same way, but most people in nearly the same way, their attractive force can be estimated and measured by the money wages to which they are regarded as equivalent.

and they have allowed for class sympathies,

Again, the desire to earn the approval, to avoid the contempt of those around one is a stimulus to action which often works with some sort of uniformity in any class of persons at a given time and place; though local and temporary conditions influence greatly not only the intensity of the desire for approval, but also the range of persons whose approval is desired. A professional man, for instance, or an artisan will be very sensitive to the approval or disapproval of those

[1] In fact a world can be conceived in which there is a science of economics very much like our own, but in it there is no money of any sort. See Appendices B, 8 and D, 2.

[2] Some remarks on the large scope of economics as conceived in Germany will be found in Appendix D, 3.

I, II, 6. in the same occupation, and care little for that of other people; and there are many economic problems, the discussion of which would be altogether unreal, if care were not taken to watch the direction and to estimate pretty closely the force of motives such as these.

and family affections.

As there may be a taint of selfishness in a man's desire to do what seems likely to benefit his fellow-workers, so there may be an element of personal pride in his desire that his family should prosper during his life and after it. But still the family affections generally are so pure a form of altruism, that their action might have shown little semblance of regularity, had it not been for the uniformity in the family relations themselves. As it is, their action is fairly regular; and it has always been fully reckoned with by economists, especially in relation to the distribution of the family income between its various members, the expenses of preparing children for their future career, and the accumulation of wealth to be enjoyed after the death of him by whom it has been earned.

It is then not the want of will but the want of power, that prevents economists from reckoning in the action of motives such as these; and they welcome the fact that some kinds of philanthropic action can be described in statistical returns, and can to a certain extent be reduced to law, if sufficiently broad averages are taken. For indeed there is scarcely any motive so fitful and irregular, bu tlat some law with regard to it can be detected by the aid of wide and patient observation. It would perhaps be possible even now to predict with tolerable closeness the subscriptions that a population of a hundred thousand Englishmen of average wealth will give to support hospitals and chapels and missions; and, in so far as this can be done, there is a basis for an economic discussion of supply and demand with reference to the services of hospital nurses, missionaries and other religious ministers. It will however probably be always true that the greater part of those actions, which are due to a feeling of duty and love of one's neighbour, cannot be classed, reduced to law and measured; and it is for this reason, and not because they are not based on self-interest, that the machinery of economics cannot be brought to bear on them.

The motives to collective action are of great and growing importance.

§ 6. Perhaps the earlier English economists confined their attention too much to the motives of individual action. But in fact economists, like all other students of social science, are concerned with individuals chiefly as members of the social organism. As a cathedral is something more than the stones of which it is made, as a person is something more than a series of thoughts and feelings, so the life of society is something more than the sum of the lives of its

individual members. It is true that the action of the whole is made up of that of its constituent parts; and that in most economic problems the best starting-point is to be found in the motives that affect the individual, regarded not indeed as an isolated atom, but as a member of some particular trade or industrial group; but it is also true, as German writers have well urged, that economics has a great and an increasing concern in motives connected with the collective ownership of property, and the collective pursuit of important aims. The growing earnestness of the age, the growing intelligence of the mass of the people, and the growing power of the telegraph, the press, and other means of communication are ever widening the scope of collective action for the public good; and these changes, together with the spread of the co-operative movement, and other kinds of voluntary association are growing up under the influence of various motives besides that of pecuniary gain: they are ever opening to the economist new opportunities of measuring motives whose action it had seemed impossible to reduce to any sort of law. I, II, 7.

But in fact the variety of motives, the difficulties of measuring them, and the manner of overcoming those difficulties are among the chief subjects with which we shall be occupied in this treatise. Almost every point touched in the present chapter will need to be discussed in fuller detail with reference to some one or more of the leading problems of economics.

Economists study the individual as a member of an industrial group;

§ 7. To conclude provisionally: economists study the actions of individuals, but study them in relation to social rather than individual life; and therefore concern themselves but little with personal peculiarities of temper and character. They watch carefully the conduct of a whole class of people, sometimes the whole of a nation, sometimes only those living in a certain district, more often those engaged in some particular trade at some time and place: and by the aid of statistics, or in other ways, they ascertain how much money on the average the members of the particular group, they are watching, are just willing to pay as the price of a certain thing which they desire, or how much must be offered to them to induce them to undergo a certain effort or abstinence that they dislike. The measurement of motive thus obtained is not indeed perfectly accurate; for if it were, economics would rank with the most advanced of the physical sciences; and not, as it actually does, with the least advanced.

and measure the play of motives in

But yet the measurement is accurate enough to enable experienced persons to forecast fairly well the extent of the results that will follow from changes in which motives of this kind are chiefly concerned.

I, II, 7.

demand and supply at first in simple cases,

Thus, for instance, they can estimate very closely the payment that will be required to produce an adequate supply of labour of any grade, from the lowest to the highest, for a new trade which it is proposed to start in any place. When they visit a factory of a kind that they have never seen before, they can tell within a shilling or two a week what any particular worker is earning, by merely observing how far his is a skilled occupation and what strain it involves on his physical, mental and moral faculties. And they can predict with tolerable certainty what rise of price will result from a given diminution of the supply of a certain thing, and how that increased price will react on the supply.

and afterwards in more complex cases.

And, starting from simple considerations of this kind, economists go on to analyse the causes which govern the local distribution of different kinds of industry, the terms on which people living in distant places exchange their goods with one another, and so on: and they can explain and predict the ways in which fluctuations of credit will affect foreign trade; or again the extent to which the burden of a tax will be shifted from those on whom it is levied, on to those for whose wants they cater; and so on.

They deal mainly with one side of man's life, but it is always the life of a real man not of a fictitious being.

In all this they deal with man as he is: not with an abstract or "economic" man; but a man of flesh and blood. They deal with a man who is largely influenced by egoistic motives in his business life to a great extent with reference to them; but who is also neither above vanity and recklessness, nor below delight in doing his work well for its own sake, or in sacrificing himself for the good of his family, his neighbours, or his country; a man who is not below the love of a virtuous life for its own sake. They deal with man as he is: but being concerned chiefly with those aspects of life in which the action of motive is so regular that it can be predicted, and the estimate of the motor-forces can be verified by results, they have established their work on a scientific basis.

The claims of economics to be a science, are its power of appeal to definite external tests, and its internal homogeneity.

For in the first place, they deal with facts which can be observed, and quantities which can be measured and recorded; so that when differences of opinion arise with regard to them, the differences can be brought to the test of public and well-established records; and thus science obtains a solid basis on which to work. In the second place, the problems, which are grouped as economic, because they relate specially to man's conduct under the influence of motives that are measurable by a money price, are found to make a fairly homogeneous group. Of course they have a great deal of subject-matter in common: that is obvious from the nature of the case. But, though not so obvious *à priori*, it will also be found to be true that

there is a fundamental unity of form underlying all the chief of them; I, II, 7.
and that in consequence, by studying them together, the same kind of economy is gained, as by sending a single postman to deliver all the letters in a certain street, instead of each one entrusting his letters to a separate messenger. For the analyses and organized processes of reasoning that are wanted for any one group of them, will be found generally useful for other groups.

The less then we trouble ourselves with scholastic inquiries as to whether a certain consideration comes within the scope of economics, the better. If the matter is important let us take account of it as far as we can. If it is one as to which there exist divergent opinions, such as cannot be brought to the test of exact and well-ascertained knowledge; if it is one on which the general machinery of economic analysis and reasoning cannot get any grip, then let us leave it aside in our purely economic studies. But let us do so simply because the attempt to include it would lessen the certainty and the exactness of our economic knowledge without any commensurate gain; and remembering always that some sort of account of it must be taken by our ethical instincts and our common sense, when they as ultimate arbiters come to apply to practical issues the knowledge obtained and arranged by economics and other sciences.

CHAPTER III

ECONOMIC GENERALIZATIONS OR LAWS

I, III, 1.

Economics uses both induction and deduction,

§ 1. It is the business of economics, as of almost every other science, to collect facts, to arrange and interpret them, and to draw inferences from them. "Observation and description, definition and classification are the preparatory activities. But what we desire to reach thereby is a knowledge of the interdependence of economic phenomena. . . . Induction and deduction are both needed for scientific thought as the left and right foot are both needed for walking." [1] The methods required for this twofold work are not peculiar to economics; they are the common property of all sciences. All the devices for the discovery of the relations between cause and effect, which are described in treatises on scientific method, have to be used in their turn by the economist: there is not any one method of investigation which can properly be called the method of economics; but every method must be made serviceable in its proper place, either singly or in combination with others. And as the number of combinations that can be made on the chess-board is so great that probably no two games exactly alike were ever played; so no two games which the student plays with nature to wrest from her her hidden truths, which were worth playing at all, ever made use of quite the same methods in quite the same way.

but in different proportions for different purposes

But in some branches of economic inquiry and for some purposes, it is more urgent to ascertain new facts, than to trouble ourselves with the mutual relations and explanations of those which we already have. While in other branches there is still so much uncertainty as to whether those causes of any event which lie on the surface and suggest themselves at first are both *true* causes of it and the *only* causes of it, that it is even more urgently needed to scrutinize our reasoning about facts which we already know, than to seek for more facts.

Analytical and historical schools

For this and other reasons, there always has been and there probably always will be a need for the existence side by side of workers with different aptitudes and different aims, some of whom

[1] Schmoller in the article on *Volkswirtschaft* in Conrad's *Handwörterbuch*.

give their chief attention to the ascertainment of facts, while others give their chief attention to scientific analysis; that is taking to pieces complex facts, and studying the relations of the several parts to one another and to cognate facts. It is to be hoped that these two schools will always exist; each doing its own work thoroughly, and each making use of the work of the other. Thus best may we obtain sound generalizations as to the past and trustworthy guidance from it for the future.

are both needed and supplement each other.

§ 2. Those physical sciences, which have progressed most beyond the points to which they were brought by the brilliant genius of the Greeks, are not all of them strictly speaking "exact sciences." But they all aim at exactness. That is they all aim at precipitating the result of a multitude of observations into provisional statements, which are sufficiently definite to be brought under test by other observations of nature. These statements, when first put forth, seldom claim a high authority. But after they have been tested by many independent observations, and especially after they have been applied successfully in the prediction of coming events, or of the results of new experiments, they graduate as *laws*. A science progresses by increasing the number and exactness of its laws; by submitting them to tests of ever increasing severity; and by enlarging their scope till a single broad law contains and supersedes a number of narrower laws, which have been shown to be special instances of it.

Imagination acting on organized study of facts frames general statements; and some of these are selected for the title of "laws."

In so far as this is done by any science, a student of it can in certain cases say with authority greater than his own (greater perhaps than that of any thinker, however able, who relies on his own resources and neglects the results obtained by previous workers), what results are to be expected from certain conditions, or what are the true causes of a certain known event.

Although the subject-matter of some progressive physical sciences is not, at present at least, capable of perfectly exact measurement; yet their progress depends on the multitudinous co-operation of armies of workers. They measure their facts and define their statements as closely as they can: so that each investigator may start as nearly as possible where those before him left off. Economics aspires to a place in this group of sciences: because though its measurements are seldom exact, and are never final; yet it is ever working to make them more exact, and thus to enlarge the range of matters on which the individual student may speak with the authority of his science.

§ 3. Let us then consider more closely the nature of economic

I, III, 3.

Nearly all laws of science are statements of tendencies.

laws, and their limitations. Every cause has a tendency to produce some definite result if nothing occurs to hinder it. Thus gravitation tends to make things fall to the ground: but when a balloon is full of gas lighter than air, the pressure of the air will make it rise in spite of the tendency of gravitation to make it fall. The law of gravitation states how any two things attract one another; how they tend to move towards one another, and will move towards one another if nothing interferes to prevent them. The law of gravitation is therefore a statement of tendencies.

The exact laws of simple sciences.

It is a very exact statement—so exact that mathematicians can calculate a Nautical Almanac, which will show the moments at which each satellite of Jupiter will hide itself behind Jupiter. They make this calculation for many years beforehand; and navigators take it to sea, and use it in finding out where they are. Now there are no economic tendencies which act as steadily and can be measured as exactly as gravitation can: and consequently there are no laws of economics which can be compared for precision with the law of gravitation.

The inexact laws of complex sciences.

But let us look at a science less exact than astronomy. The science of the tides explains how the tide rises and falls twice a day under the action of the sun and the moon: how there are strong tides at new and full moon, and weak tides at the moon's first and third quarter; and how the tide running up into a closed channel, like that of the Severn, will be very high; and so on. Thus, having studied the lie of the land and the water all round the British isles, people can calculate beforehand when the tide will *probably* be at its highest on any day at London Bridge or at Gloucester; and how high it will be there. They have to use the word *probably*, which the astronomers do not need to use when talking about the eclipses of Jupiter's satellites. For, though many forces act upon Jupiter and his satellites, each one of them acts in a definite manner which can be predicted beforehand: but no one knows enough about the weather to be able to say beforehand how it will act. A heavy downpour of rain in the upper Thames valley, or a strong north-east wind in the German Ocean, may make the tides at London Bridge differ a good deal from what had been expected.

The science of man is complex and its laws are inexact.

The laws of economics are to be compared with the laws of the tides, rather than with the simple and exact law of gravitation. For the actions of men are so various and uncertain, that the best statement of tendencies, which we can make in a science of human conduct, must needs be inexact and faulty. This might be urged as a reason against making any statements at all on the subject; but

that would be almost to abandon life. Life is human conduct, and the thoughts and emotions that grow up around it. By the fundamental impulses of our nature we all—high and low, learned and unlearned—are in our several degrees constantly striving to understand the courses of human action, and to shape them for our purposes, whether selfish or unselfish, whether noble or ignoble. And since we *must* form to ourselves some notions of the tendencies of human action, our choice is between forming those notions carelessly and forming them carefully. The harder the task, the greater the need for steady patient inquiry; for turning to account the experience, that has been reaped by the more advanced physical sciences; and for framing as best we can well thought-out estimates, or provisional laws, of the tendencies of human action.

§ 4. The term "law" means then nothing more than a general proposition or statement of tendencies, more or less certain, more or less definite. Many such statements are made in every science: but we do not, indeed we cannot, give to all of them a formal character and name them as laws. We must select; and the selection is directed less by purely scientific considerations than by practical convenience. If there is any general statement which we want to bring to bear so often, that the trouble of quoting it at length, when needed, is greater than that of burdening the discussion with an additional formal statement and an additional technical name, then it receives a special name, otherwise not.[1]

Definition of *law social,*

Thus a law of social science, or a *Social Law*, is a statement of social tendencies; that is, a statement that a certain course of action may be expected under certain conditions from the members of a social group.

and *economic*

Economic laws, or statements of economic tendencies, are those social laws which relate to branches of conduct in which the strength of the motives chiefly concerned can be measured by a money price.

There is thus no hard and sharp line of division between those social laws which are, and those which are not, to be regarded also as economic laws. For there is a continuous gradation from social laws concerned almost exclusively with motives that can be measured by price, to social laws in which such motives have little place; and which are therefore generally as much less precise and exact than economic laws, as those are than the laws of the more exact physical sciences.

[1] The relation of "natural and economic laws," is exhaustively discussed by Neumann (*Zeitschrift für die gesamte Staatswissenschaft*, 1892) who concludes (p. 464) that there is no other word than Law (*Gesetz*) to express those statements of tendency, which play so important a part in natural as well as economic science. See also Wagner (*Grundlegung*, §§ 86–91).

I, III, 4.

Corresponding to the substantive "law" is the adjective "legal." But this term is used only in connection with "law" in the sense of an ordinance of government; not in connection with "law" the sense of a statement of relation between cause and effect. The adjective used for this purpose is derived from "norma," a term which is nearly equivalent to "law," and might perhaps with advantage be substituted for it in scientific discussions. And following our definition of an economic law, we may say that the course of action which may be expected *under certain conditions* from the members of an industrial group is the *normal action* of the members of that group relatively to those conditions.

Definition of *normal* economic *action*.

This use of the term Normal has been misunderstood; and it may be well to say something as to the unity in difference which underlies various uses of the term. When we talk of a Good man or a Strong man, we refer to excellence or strength of those particular physical mental or moral qualities which are indicated in the context. A strong judge has seldom the same qualities as a strong rower; a good jockey is not always of exceptional virtue. In the same way every use of the term normal implies the predominance of certain tendencies which appear likely to be more or less steadfast and persistent in their action over those which are relatively exceptional and intermittent. Illness is an abnormal condition of man: but a long life passed without any illness is abnormal. During the melting of the snows, the Rhine rises above its normal level: but in a cold dry spring when it is less than usual above that normal level, it may be said to be abnormally low (for that time of year). In all these cases normal results are those which may be expected as the outcome of those tendencies which the context suggests; or, in other words, which are in accordance with those "statements of tendency," those Laws or Norms, which are appropriate to the context.

The term *Normal* implies harmony with whatever conditions happen to be under discussion.

This is the point of view from which it is said that normal economic action is that which may be expected in the long run under certain conditions (provided those conditions are persistent) from the members of an industrial group. It is normal that bricklayers in most parts of England are willing to work for 10*d*. an hour, but refuse to work for 7*d*. In Johannesburg it may be normal that a bricklayer should refuse work at much less than £1 a day. The normal price of *bona fide* fresh laid eggs may be taken to be a penny when nothing is said as to the time of the year: and yet threepence may be the normal price in town during January; and twopence may be an abnormally low price then, caused by "unseasonable" warmth.

Thus normal conditions may imply high wages or low wages;

I, III, 4.

Another misunderstanding to be guarded against arises from the notion that only those economic results are normal, which are due to the undisturbed action of free competition. But the term has often to be applied to conditions in which perfectly free competition does not exist, and can hardly even be supposed to exist; and even where free competition is most dominant, the normal conditions of every fact and tendency will include vital elements that are not a part of competition nor even akin to it. Thus, for instance, the normal arrangement of many transactions in retail and wholesale trade, and on Stock and Cotton Exchanges, rests on the assumption that verbal contracts, made without witnesses, will be honourably discharged; and in countries in which this assumption cannot legitimately be made, some parts of the Western doctrine of normal value are inapplicable. Again, the prices of various Stock Exchange securities are affected "normally" by the patriotic feelings not only of the ordinary purchasers, but of the brokers themselves: and so on.

they may imply the presence or the absence of eager competition.

Lastly it is sometimes erroneously supposed that normal action in economics is that which is right morally. But that is to be understood only when the context implies that the action is being judged from the ethical point of view. When we are considering the facts of the world, as they are, and not as they ought to be, we shall have to regard as "normal" to the circumstances in view, much action which we should use our utmost efforts to stop. For instance, the normal condition of many of the very poorest inhabitants of a large town is to be devoid of enterprise, and unwilling to avail themselves of the opportunities that may offer for a healthier and less squalid life elsewhere; they have not the strength, physical, mental and moral, required for working their way out of their miserable surroundings. The existence of a considerable supply of labour ready to make match-boxes at a very low rate is normal in the same way that a contortion of the limbs is a normal result of taking strychnine. It is one result, a deplorable result, of those tendencies the laws of which we have to study. This illustrates one peculiarity which economics shares with a few other sciences, the nature of the material of which can be modified by human effort. Science may suggest a moral or practical precept to modify that nature and thus modify the action of laws of nature. For instance, economics may suggest practical means of substituting capable workers for those who can only do such work as match-box making; as physiology may suggest measures for so modifying the breeds of cattle that they mature early, and carry much flesh on light frames. The laws of the fluctuation

Normal action is not always right action.

I, III, 5.

of credit and prices have been much altered by increased powers of prediction.

Again when "normal" prices are contrasted with temporary or market prices, the term refers to the dominance in the long run of certain tendencies under given conditions. But this raises some difficult questions which may be postponed.[1]

All scientific doctrines tacitly or implicitly assume certain conditions and are in this sense hypothetical.

§ 5. It is sometimes said that the laws of economics are "hypothetical." Of course, like every other science, it undertakes to study the effects which will be produced by certain causes, not absolutely, but subject to the condition that *other things are equal*, and that the causes are able to work out their effects undisturbed. Almost every scientific doctrine, when carefully and formally stated, will be found to contain some proviso to the effect that other things are equal: the action of the causes in question is supposed to be isolated; certain effects are attributed to them, but only *on the hypothesis* that no cause is permitted to enter except those distinctly allowed for. It is true however that the condition that time must be allowed for causes to produce their effects is a source of great difficulty in economics. For meanwhile the material on which they work, and perhaps even the causes themselves, may have changed; and the tendencies which are being described will not have a sufficiently "long run" in which to work themselves out fully. This difficulty will occupy our attention later on.

But in economics the implied conditions must be emphasized.

The conditioning clauses implied in a law are not continually repeated, but the common sense of the reader supplies them for himself. In economics it is necessary to repeat them oftener than elsewhere, because its doctrines are more apt than those of any other science to be quoted by persons who have had no scientific training, and who perhaps have heard them only at second hand, and without their context. One reason why ordinary conversation is simpler in form than a scientific treatise, is that in conversation we can safely omit conditioning clauses; because, if the hearer does not supply them for himself, we quickly detect the misunderstanding, and set it right. Adam Smith and many of the earlier writers on economics attained seeming simplicity by following the usages of conversation, and omitting conditioning clauses. But this has caused them to be constantly misunderstood, and has led to much waste of time and trouble in profitless controversy; they purchased apparent ease at too great a cost even for that gain.[2]

Though economic analysis and general reasoning are of wide

[1] They are discussed in Book V, especially chapters III and V.
[2] Compare Book II, chapter I.

application, yet every age and every country has its own problems; and every change in social conditions is likely to require a new development of economic doctrines.[1] I, III, 5.

[1] Some parts of economics are relatively abstract or *pure*, because they are concerned mainly with broad general propositions: for, in order that a proposition may be of broad application it must necessarily contain few details: it cannot adapt itself to particular cases; and if it points to any prediction, that must be governed by a strong conditioning clause in which a very large meaning is given to the phrase "other things being equal."

Other parts are relatively *applied*, because they deal with narrower questions more in detail; they take more account of local and temporary elements; and they consider economic conditions in fuller and closer relation to other conditions of life. Thus there is but a short step from the applied science of banking in its more general sense, to broad rules or precepts of the general Art of banking: while the step from a particular local problem of the applied science of banking to the corresponding rule of practice or precept of Art may be shorter still.

CHAPTER IV

THE ORDER AND AIMS OF ECONOMIC STUDIES

Summary of chapters II and III.

§ 1. We have seen that the economist must be greedy of facts; but that facts by themselves teach nothing. History tells of sequences and coincidences; but reason alone can interpret and draw lessons from them. The work to be done is so various that much of it must be left to be dealt with by trained common sense, which is the ultimate arbiter in every practical problem. Economic science is but the working of common sense aided by the appliances of organized analysis and general reasoning, which facilitate the task of collecting, arranging, and drawing inferences from particular facts. Though its scope is always limited, though its work without the aid of common sense is vain, yet it enables common sense to go further in difficult problems than would otherwise be possible.

Economic laws are statements with regard to the tendencies of man's action under certain conditions. They are hypothetical only in the same sense as are the laws of the physical sciences: for those laws also contain or imply conditions. But there is more difficulty in making the conditions clear, and more danger in any failure to do so, in economics than in physics. The laws of human action are not indeed as simple, as definite or as clearly ascertainable as the law of gravitation; but many of them may rank with the laws of those natural sciences which deal with complex subject-matter.

The *raison d'être* of economics as a separate science is that it deals chiefly with that part of man's action which is most under the control of measurable motives; and which therefore lends itself better than any other to systematic reasoning and analysis. We cannot indeed measure motives of any kind, whether high or low, as they are in themselves: we can measure only their moving force. Money is never a perfect measure of that force; and it is not even a tolerably good measure unless careful account is taken of the general conditions under which it works, and especially of the riches or poverty of those whose action is under discussion. But with careful precautions money affords a fairly good measure of the moving force of a great part of the motives by which men's lives are fashioned.

The study of theory must go hand in hand with that of facts:

and for dealing with most modern problems it is modern facts that are of the greatest use. For the economic records of the distant past are in some respects slight and untrustworthy; and the economic conditions of early times are wholly unlike those of free enterprise, of general education, of true democracy, of steam, of the cheap press and the telegraph.

Scientific inquiries are to be arranged with reference not to the practical aims which they subserve, but to the nature of the subjects with which they are concerned.

§ 2. Economics has then as its purpose firstly to acquire knowledge for its own sake, and secondly to throw light on practical issues. But though we are bound, before entering on any study, to consider carefully what are its uses, we should not plan out our work with direct reference to them. For by so doing we are tempted to break off each line of thought as soon as it ceases to have an immediate bearing on that particular aim which we have in view at the time: the direct pursuit of practical aims leads us to group together bits of all sorts of knowledge, which have no connection with one another except for the immediate purposes of the moment; and which throw but little light on one another. Our mental energy is spent in going from one to another; nothing is thoroughly thought out; no real progress is made.

The best grouping, therefore, for the purposes of science is that which collects together all those facts and reasonings which are similar to one another in nature: so that the study of each may throw light on its neighbour. By working thus for a long time at one set of considerations, we get gradually nearer to those fundamental unities which are called nature's laws: we trace their action first singly, and then in combination; and thus make progress slowly but surely. The practical uses of economic studies should never be out of the mind of the economist, but his special business is to study and interpret facts and to find out what are the effects of different causes acting singly and in combination.

Questions investigated by the economist.

§ 3. This may be illustrated by enumerating some of the chief questions to which the economist addresses himself. He inquires :—

What are the causes which, especially in the modern world, affect the consumption and production, the distribution and exchange of wealth; the organization of industry and trade; the money market; wholesale and retail dealing; foreign trade, and the relations between employers and employed? How do all these movements act and react upon one another? How do their ultimate differ from their immediate tendencies?

Subject to what limitations is the price of anything a measure of its desirability? What increase of wellbeing is *primâ facie* likely to result from a given increase in the wealth of any class of society?

I, IV, 4. How far is the industrial efficiency of any class impaired by the insufficiency of its income? How far would an increase of the income of any class, if once effected, be likely to sustain itself through its effects in increasing their efficiency and earning power?

How far does, as a matter of fact, the influence of economic freedom reach (or how far has it reached at any particular time) in any place, in any rank of society, or in any particular branch of industry? What other influences are most powerful there; and how is the action of all these influences combined? In particular, how far does economic freedom tend of its own action to build up combinations and monopolies, and what are their effects? How are the various classes of society likely to be affected by its action in the long run; what will be the intermediate effects while its ultimate results are being worked out; and, account being taken of the time over which they will spread, what is the relative importance of these two classes of ultimate and intermediate effects? What will be the incidence of any system of taxes? What burdens will it impose on the community, and what revenue will it afford to the State?

Practical issues which stimulate the inquiries of the English economist at the present time, though they do not lie wholly within the range of his science.

§ 4. The above are the main questions with which economic science has to deal directly, and with reference to which its main work of collecting facts, of analysing them and reasoning about them should be arranged. The practical issues which, though lying for the greater part outside the range of economic science, yet supply a chief motive in the background to the work of the economist, vary from time to time, and from place to place, even more than do the economic facts and conditions which form the material of his studies. The following problems seem to be of special urgency now in our own country:—

How should we act so as to increase the good and diminish the evil influences of economic freedom, both in its ultimate results and in the course of its progress? If the first are good and the latter evil, but those who suffer the evil, do not reap the good; how far is it right that they should suffer for the benefit of others?

Taking it for granted that a more equal distribution of wealth is to be desired, how far would this justify changes in the institutions of property, or limitations of free enterprise even when they would be likely to diminish the aggregate of wealth? In other words, how far should an increase in the income of the poorer classes and a diminution of their work be aimed at, even if it involved some lessening of national material wealth? How far could this be done without injustice, and without slackening the energies of the leaders of progress? How ought the burdens of taxation to be distributed among the different classes of society?

Ought we to rest content with the existing forms of division of labour? Is it necessary that large numbers of the people should be exclusively occupied with work that has no elevating character? Is it possible to educate gradually among the great mass of workers a new capacity for the higher kinds of work; and in particular for undertaking co-operatively the management of the business in which they are themselves employed?

What are the proper relations of individual and collective action in a stage of civilization such as ours? How far ought voluntary association in its various forms, old and new, to be left to supply collective action for those purposes for which such action has special advantages? What business affairs should be undertaken by society itself acting through its government, imperial or local? Have we, for instance, carried as far as we should the plan of collective ownership and use of open spaces, of works of art, of the means of instruction and amusement, as well as of those material requisites of a civilized life, the supply of which requires united action, such as gas and water, and railways?

When government does not itself directly intervene, how far should it allow individuals and corporations to conduct their own affairs as they please? How far should it regulate the management of railways and other concerns which are to some extent in a position of monopoly, and again of land and other things the quantity of which cannot be increased by man? Is it necessary to retain in their full force all the existing rights of property; or have the original necessities for which they were meant to provide, in some measure passed away?

Are the prevailing methods of using wealth entirely justifiable? What scope is there for the moral pressure of social opinion in constraining and directing individual action in those economic relations in which the rigidity and violence of government interference would be likely to do more harm than good? In what respect do the duties of one nation to another in economic matters differ from those of members of the same nation to one another?

The dominant aim of economics in the present generation is to contribute to a solution of social problems.

Economics is thus taken to mean a study of the economic aspects and conditions of man's political, social and private life; but more especially of his social life. The aims of the study are to gain knowledge for its own sake, and to obtain guidance in the practical conduct of life, and especially of social life. The need for such guidance was never so urgent as now; a later generation may have more abundant leisure than we for researches that throw light

I, IV, 5. on obscure points in abstract speculation, or in the history of past times, but do not afford immediate aid in present difficulties.

But though thus largely directed by practical needs, economics avoids as far as possible the discussion of those exigencies of party organization, and those diplomacies of home and foreign politics of which the statesman is bound to take account in deciding what measures that he can propose will bring him nearest to the end that he desires to secure for his country. It aims indeed at helping him to determine not only what that end should be, but also what are the best methods of a broad policy devoted to that end. But it shuns many political issues, which the practical man cannot ignore: and it is therefore a science, pure and applied, rather than a science and an art. And it is better described by the broad term "Economics" than by the narrower term "Political Economy."

The functions of perception, imagination and reason in economics.

§ 5. The economist needs the three great intellectual faculties, perception, imagination and reason: and most of all he needs imagination, to put him on the track of those causes of visible events which are remote or lie below the surface, and of those effects of visible causes which are remote or lie below the surface.

The natural sciences and especially the physical group of them have this great advantage as a discipline over all studies of man's action, that in them the investigator is called on for exact conclusions which can be verified by subsequent observation or experiment. His fault is soon detected if he contents himself with such causes and such effects as lie on the surface; or again if he ignores the mutual interaction of the forces of nature, wherein every movement modifies and is modified by all that surround it. Nor does the thorough student of physics rest satisfied with a mere general analysis; he is ever striving to make it quantitative; and to assign its proper proportion to each element in his problem.

An external standard of measurement to steady the judgment is in some measure attainable by the economist.

In sciences that relate to man exactness is less attainable. The path of least resistance is sometimes the only one open: it is always alluring; and though it is also always treacherous, the temptation is great to follow it even when a more thorough way can be fought out by resolute work. The scientific student of history is hampered by his inability to experiment and even more by the absence of any objective standard to which his estimates of relative proportion can be referred. Such estimates are latent in almost every stage of his argument: he cannot conclude that one cause or group of causes has been overridden by another without making some implicit estimate of their relative weights. And yet it is only by a great effort that he perceives how dependent he is on his own subjective impressions.

The economist also is hampered by this difficulty, but in a less degree than other students of man's action; for indeed he has some share in those advantages which give precision and objectivity to the work of the physicist. So long, at all events, as he is concerned with current and recent events, many of his facts group themselves under classes as to which statements can be made that are definite, and often were approximately accurate numerically: and thus he is at some advantage in seeking for causes and for results which lie below the surface, and are not easily seen; and in analyzing complex conditions into their elements and in reconstructing a whole out of many elements.

But his main reliance must be on disciplined imagination;

In smaller matters, indeed, simple experience will suggest the unseen. It will, for instance, put people in the way of looking for the harm to strength of character and to family life that comes from ill-considered aid to the thriftless; even though what is seen on the surface is almost sheer gain. But greater effort, a larger range of view, a more powerful exercise of the imagination are needed in tracking the true results of, for instance, many plausible schemes for increasing steadiness of employment. For that purpose it is necessary to have learnt how closely connected are changes in credit, in domestic trade, in foreign trade competition, in harvests, in prices; and how all of these affect steadiness of employment for good and for evil. It is necessary to watch how almost every considerable economic event in any part of the Western world affects employment in some trades at least in almost every other part. If we deal only with those causes of unemployment which are near at hand, we are likely to make no good cure of the evils we see; and we are likely to cause evils, that we do not see. And if we are to look for those which are far off and weigh them in the balance, then the work before us is a high discipline for the mind.

Again, when by a "standard rule" or any other device wages are kept specially high in any trade, imagination set agoing will try to track the lives of those who are prevented by the standard rule from doing work, of which they are capable, at a price that people are willing to pay for it. Are they pushed up, or are they pushed down? If some are pushed up and some pushed down, as commonly happens, is it the many that are pushed up and the few that are pushed down, or the other way about? If we look at surface results, we may suppose that it is the many who are pushed up. But if, by the scientific use of the imagination, we think out all the ways in which prohibitions, whether on Trade Union authority or any other, prevent people from doing their best and earning their best,

I, IV, 6.

we shall often conclude that it is the many who have been pushed down, and the few who have been pushed up. Partly under English influence, some Australasian colonies are making bold ventures, which hold out specious promise of greater immediate comfort and ease to the workers. Australasia has indeed a great reserve of borrowing power in her vast landed property: and should the proposed short cuts issue in some industrial decadence, the fall may be slight and temporary. But it is already being urged that England should move on similar lines: and a fall for her would be more serious. What is needed, and what we may hope is coming in the near future, is a larger study of such schemes of the same kind and by the same order of minds as are applied to judging a new design for a battleship with reference to her stability in bad weather.

and he needs active sympathy.

In such problems as this it is the purely intellectual, and sometimes even the critical faculties, which are most in demand. But economic studies call for and develop the faculty of sympathy, and especially that rare sympathy which enables people to put themselves in the place, not only of their comrades, but also of other classes. This class sympathy is, for instance, strongly developed by inquiries, which are becoming every day more urgent, of the reciprocal influences which character and earnings, methods of employment and habits of expenditure exert on one another; of the ways in which the efficiency of a nation is strengthened by and strengthens the confidences and affections which hold together the members of each economic group—the family, employers and employees in the same business, citizens of the same country; of the good and evil that are mingled in the individual unselfishness and the class selfishness of professional etiquette and of trade union customs; and of movements by which our growing wealth and opportunities may best be turned to account for the wellbeing of the present and coming generations.[1]

Caution is demanded by an increasing recognition of the limitation of our knowledge and the uncertain perman-

§ 6. The economist needs imagination especially in order that he may develop his ideals. But most of all he needs caution and reserve in order that his advocacy of ideals may not outrun his grasp of the future.

After many more generations have passed, our present ideals and methods may seem to belong to the infancy, rather than to the maturity of man. One definite advance has already been made. We have learnt that every one until proved to be hopelessly weak or

[1] This Section is reproduced from a *Plea for the creation of a curriculum in economics and associated branches of political science* addressed to the University of Cambridge in 1902, and conceded in the following year.

base is worthy of full economic freedom : but we are not in a position to guess confidently to what goal the advance thus begun will ultimately lead. In the later Middle Ages a rough beginning was made of the study of the industrial organism, regarded as embracing all humanity. Each successive generation has seen further growths of that organism; but none has seen so large a growth as our own. The eagerness with which it has been studied has grown with its growth: and no parallel can be found in earlier times to the breadth and variety of the efforts that have been made to comprehend it. But the chief outcome of recent studies is to make us recognize more fully, than could be done by any previous generation, how little we know of the causes by which progress is being fashioned, and how little we can forecast the ultimate destiny of the industrial organism.

I, iv, 6.

ence of our present social ideals.

Some harsh employers and politicians, defending exclusive class privileges early in last century, found it convenient to claim the authority of political economy on their side; and they often spoke of themselves as "economists." And even in our own time, that title has been assumed by opponents of generous expenditure on the education of the masses of the people, in spite of the fact that living economists with one consent maintain that such expenditure is a true economy, and that to refuse it is both wrong and bad business from a national point of view. But Carlyle and Ruskin, followed by many other writers who had no part in their brilliant and ennobling poetical visions, have without examination held the great economists responsible for sayings and deeds to which they were really averse; and in consequence there has grown up a popular misconception of their thoughts and character.

Popular misconceptions of the character of the founders of modern economics.

The fact is that nearly all the founders of modern economics were men of gentle and sympathetic temper, touched with the enthusiasm of humanity. They cared little for wealth for themselves; they cared much for its wide diffusion among the masses of the people. They opposed antisocial monopolies however powerful. In their several generations they supported the movement against the class legislation which denied to trade unions privileges that were open to associations of employers; or they worked for a remedy against the poison which the old Poor Law was instilling into the hearts and homes of the agricultural and other labourers; or they supported the factory acts, in spite of the strenuous opposition of some politicians and employers who claimed to speak in their name. They were without exception devoted to the doctrine that the well-being of the whole people should be the ultimate goal of all private effort and all public policy. But they were strong in courage and

I, IV, 6.

caution; they appeared cold, because they would not assume the responsibility of advocating rapid advances on untried paths, for the safety of which the only guarantees offered were the confident hopes of men whose imaginations were eager, but not steadied by knowledge nor disciplined by hard thought.

Biology has given new hopes as to the future of the human race.

Their caution was perhaps a little greater than necessary: for the range of vision even of the great seers of that age was in some respects narrower than is that of most educated men in the present time; when, partly through the suggestions of biological study, the influence of circumstances in fashioning character is generally recognized as the dominant fact in social science. Economists have accordingly now learnt to take a larger and more hopeful view of the possibilities of human progress. They have learnt to trust that the human will, guided by careful thought, can so modify circumstances as largely to modify character; and thus to bring about new conditions of life still more favourable to character; and therefore to the economic, as well as the moral, wellbeing of the masses of the people. Now as ever it is their duty to oppose all plausible short cuts to that great end, which would sap the springs of energy and initiative.

But it is still true that short cuts are dangerous: progress must be cautious and tentative.

The rights of property, as such, have not been venerated by those master minds who have built up economic science; but the authority of the science has been wrongly assumed by some who have pushed the claims of vested rights to extreme and antisocial uses. It may be well therefore to note that the tendency of careful economic study is to base the rights of private property not on any abstract principle, but on the observation that in the past they have been inseparable from solid progress; and that therefore it is the part of responsible men to proceed cautiously and tentatively in abrogating or modifying even such rights as may seem to be inappropriate to the ideal conditions of social life.

BOOK II

SOME FUNDAMENTAL NOTIONS

CHAPTER I

INTRODUCTORY

§ 1. We have seen that economics is, on the one side, a Science of Wealth; and, on the other, that part of the Social Science of man's action in society, which deals with his Efforts to satisfy his Wants, in so far as the efforts and wants are capable of being measured in terms of wealth, or its general representative, *i.e.* money. We shall be occupied during the greater part of this volume with these wants and efforts; and with the causes by which the prices that measure the wants are brought into equilibrium with those that measure the efforts. For this purpose we shall have to study in Book III wealth in relation to the diversity of man's wants, which it has to satisfy; and in Book IV wealth in relation to the diversity of man's efforts by which it is produced. II, I, 1.

Economics regards wealth as satisfying Wants and as the result of Efforts.

But in the present Book, we have to inquire which of all the things that are the result of man's efforts, and are capable of satisfying man's wants, are to be counted as Wealth; and into what groups or classes these are to be divided. For there is a compact group of terms connected with Wealth itself, and with Capital, the study of each of which throws light on the others; while the study of the whole together is a direct continuation, and in some respects a completion, of that inquiry as to the scope and methods of economics on which we have just been engaged. And, therefore, instead of taking what may seem the more natural course of starting with an analysis of wants, and of wealth in direct relation to them, it seems on the whole best to deal with this group of terms at once.

But it is best to make a preliminary study of wealth itself.

In doing this we shall of course have to take some account of the variety of wants and efforts; but we shall not want to assume anything that is not obvious and a matter of common knowledge. The real difficulty of our task lies in another direction; being the result of the need under which economics, alone among sciences, lies of

II, I, 2.

making shift with a few terms in common use to express a great number of subtle distinctions.

Principles of classification.

§ 2. As Mill says [1] :—"The ends of scientific classification are best answered when the objects are formed into groups respecting which a greater number of general propositions can be made, and those propositions more important, than those which could be made respecting any other groups into which the same things could be distributed." But we meet at starting with the difficulty that those propositions which are the most important in one stage of economic development, are not unlikely to be among the least important in another, if indeed they apply at all.

The difficulties of classifying things which are changing their characters and their uses.

In this matter economists have much to learn from the recent experiences of biology: and Darwin's profound discussion of the question [2] throws a strong light on the difficulties before us. He points out that those parts of the structure which determine the habits of life and the general place of each being in the economy of nature, are as a rule not those which throw most light on its origin, but those which throw least. The qualities which a breeder or a gardener notices as eminently adapted to enable an animal or a plant to thrive in its environment, are for that very reason likely to have been developed in comparatively recent times. And in like manner those properties of an economic institution which play the most important part in fitting it for the work which it has to do now, are for that very reason likely to be in a great measure of recent growth.

Instances are found in many of the relations between employer and employed, between middleman and producer, between bankers and their two classes of clients, those from whom they borrow and those to whom they lend. The substitution of the term "interest" for "usury" corresponds to a general change in the character of loans, which has given an entirely new key-note to our analysis and classification of the different elements into which the cost of production of a commodity may be resolved. Again, the general scheme of division of labour into skilled and unskilled is undergoing a gradual change; the scope of the term "rent" is being broadened in some directions and narrowed in others; and so on.

But on the other hand we must keep constantly in mind the history of the terms which we use. For, to begin with, this history is important for its own sake; and because it throws side-lights on the history of the economic development of society. And further, even if the sole purpose of our study of economics were to obtain

[1] *Logic*, Bk. iv. ch. VII. Par. 2.
[2] *Origin of Species*, ch. XIV.

knowledge that would guide us in the attainment of immediate practical ends, we should yet be bound to keep our use of terms as much as possible in harmony with the traditions of the past; in order that we might be quick to perceive the indirect hints and the subtle and subdued warnings, which the experiences of our ancestors offer for our instruction. II, I, 3.

§ 3. Our task is difficult. In physical sciences indeed, whenever it is seen that a group of things have a certain set of qualities in common, and will often be spoken of together, they are formed into a class with a special name; and as soon as a new notion emerges, a new technical term is invented to represent it. But economics cannot venture to follow this example. Its reasonings must be expressed in language that is intelligible to the general public; it must therefore endeavour to conform itself to the familiar terms of everyday life, and so far as possible must use them as they are commonly used.

In its use of terms economics must follow as closely as possible the practice of everyday life.

In common use almost every word has many shades of meaning, and therefore needs to be interpreted by the context. And, as Bagehot has pointed out, even the most formal writers on economic science are compelled to follow this course; for otherwise they would not have enough words at their disposal. But unfortunately they do not always avow that they are taking this freedom; sometimes perhaps they are scarcely even aware of the fact themselves. The bold and rigid definitions, with which their expositions of the science begin, lull the reader into a false security. Not being warned that he must often look to the context for a special interpretation clause, he ascribes to what he reads a meaning different from that which the writers had in their own minds; and perhaps misrepresents them and accuses them of folly of which they had not been guilty.[1]

But that is not always consistent, definite.

Again, most of the chief distinctions marked by economic terms

[1] We ought "to write more as we do in common life, where the context is a sort of unexpressed 'interpretation clause'; only as in Political Economy we have more difficult things to speak of than in ordinary conversation, we must take more care, give more warning of any change; and at times write out 'the interpretation clause' for that page or discussion lest there should be any mistake. I know that this is difficult and delicate work; and all that I have to say in defence of it is that in practice it is safer than the competing plan of inflexible definitions. Any one who tries to express various meanings on complex things with a scanty vocabulary of fastened senses, will find that his style grows cumbrous without being accurate, that he has to use long periphrases for common thoughts, and that after all he does not come out right, for he is half the time falling back into the senses which fit the case in hand best, and these are sometimes one, sometimes another, and almost always different from his 'hard and fast' sense. In such discussions we should learn to vary our definitions as we want, just as we say 'let x, y, z, mean' now this, and now that, in different problems; and this, though they do not always avow it, is really the practice of the clearest and most effective writers." (Bagehot's *Postulates of English Political Economy*, pp. 78, 9.) Cairnes also (*Logical Method of Political Economy*, Lect. VI.) combats "the assumption that the attribute on which a definition turns ought to be one which does not admit of degrees"; and argues that "to admit of degrees is the character of all natural facts."

II, I, 4.

are differences not of kind but of degree. At first sight they appear to be differences of kind, and to have sharp outlines which can be clearly marked out; but a more careful study has shown that there is no real breach of continuity. It is a remarkable fact that the progress of economics has discovered hardly any new real differences in kind, while it is continually resolving apparent differences in kind into differences in degree. We shall meet with many instances of the evil that may be done by attempting to draw broad, hard and fast lines of division, and to formulate definite propositions with regard to differences between things which nature has not separated by any such lines.

It is necessary that notions should be clearly defined, but not that the use of terms should be rigid.

§ 4. We must then analyse carefully the real characteristics of the various things with which we have to deal; and we shall thus generally find that there is some use of each term which has distinctly greater claims than any other to be called its leading use, on the ground that it represents a distinction that is more important for the purposes of modern science than any other that is in harmony with ordinary usage. This may be laid down as the meaning to be given to the term whenever nothing to the contrary is stated or implied by the context. When the term is wanted to be used in any other sense, whether broader or narrower, the change must be indicated.

Even among the most careful thinkers there will always remain differences of opinion as to the exact places in which some at least of the lines of definition should be drawn. The questions at issue must in general be solved by judgments as to the practical convenience of different courses; and such judgments cannot always be established or overthrown by scientific reasoning: there must remain a margin of debatable ground. But there is no such margin in the analysis itself: if two people differ with regard to that, they cannot both be right. And the progress of the science may be expected gradually to establish this analysis on an impregnable basis.[1]

[1] When it is wanted to narrow the meaning of a term (that is, in logical language, to diminish its extension by increasing its intension), a qualifying adjective will generally suffice, but a change in the opposite direction cannot as a rule be so simply made. Contests as to definitions are often of this kind :—A and B are qualities common to a great number of things, many of these things have in addition the quality C, and again many the quality D, while some have both C and D. It may then be argued that on the whole it will be best to define a term so as to include all things which have the qualities A and B, or only those which have the qualities A, B, C, or only those which have the qualities A, B, D; or only those which have A, B, C, D. The decision between these various courses must rest on considerations of practical convenience, and is a matter of far less importance than a careful study of the qualities A, B, C, D, and of their mutual relations. But unfortunately this study has occupied a much smaller space in English economics than controversies as to definitions; which have indeed occasionally led indirectly to the discovery of scientific truth, but always by roundabout routes, and with much waste of time and labour.

CHAPTER II

WEALTH

§ 1. All wealth consists of desirable things; that is, things which satisfy human wants directly or indirectly: but not all desirable things are reckoned as wealth. The affection of friends, for instance, is an important element of wellbeing, but it is not reckoned as wealth, except by a poetic licence. Let us then begin by classifying desirable things, and then consider which of them should be accounted as elements of wealth. II, II, 1. Wealth consists of desirable things or *Goods*.

In the absence of any short term in common use to represent all desirable things, or things that satisfy human wants, we may use the term *Goods* for that purpose.

Material goods. Desirable things or goods are Material, or Personal and Immaterial. *Material goods* consist of useful material things, and of all rights to hold, or use, or derive benefits from material things, or to receive them at a future time. Thus they include the physical gifts of nature, land and water, air and climate; the products of agriculture, mining, fishing, and manufacture; buildings, machinery, and implements; mortgages and other bonds; shares in public and private companies, all kinds of monopolies, patent-rights, copyrights; also rights of way and other rights of usage. Lastly, opportunities of travel, access to good scenery, museums, etc., are the embodiment of material facilities, external to a man; though the faculty of appreciating them is internal and personal.

External and internal goods. A man's *non-material* goods fall into two classes. One consists of his own qualities and faculties for action and for enjoyment; such for instance as business ability, professional skill, or the faculty of deriving recreation from reading or music. All these lie within himself and are called *internal*. The second class are called *external* because they consist of relations beneficial to him with other people. Such, for instance, were the labour dues and personal services of various kinds which the ruling classes used to require from their serfs and other dependents. But these have passed away; and the chief instances of such relations beneficial to their owner now-a-days

are to be found in the good will and business connection of traders and professional men.[1]

Transferable and non-transferable goods.

Again, goods may be *transferable* or *non-transferable*. Among the latter are to be classed a person's qualities and faculties for action and enjoyment (*i.e.* his internal goods); also such part of his business connection as depends on personal trust in him and cannot be transferred, as part of his vendible good will; also the advantages of climate, light, air, and his privileges of citizenship and rights and opportunities of making use of public property.[2]

Free goods

Those goods are *free*, which are not appropriated and are afforded by Nature without requiring the effort of man. The land in its original state was a free gift of nature. But in settled countries it is not a free good from the point of view of the individual. Wood is still free in some Brazilian forests. The fish of the sea are free generally: but some sea fisheries are jealously guarded for the exclusive use of members of a certain nation, and may be classed as national property. Oyster beds that have been planted by man are not free in any sense; those that have grown naturally are free in every sense if they are not appropriated; if they are private property they are still free gifts from the point of view of the nation. But, since the nation has allowed its rights in them to become vested in private persons, they are not free from the point of view of the individual; and the same is true of private rights of fishing in rivers. But wheat grown on free land and the fish that have been landed from free fisheries are not free: for they have been acquired by labour.

A person's wealth

§ 2. We may now pass to the question which classes of a man's goods are to be reckoned as part of his wealth. The question is one as to which there is some difference of opinion, but the balance of argument as well as of authority seems clearly to incline in favour of the following answer :—

[1] For, in the words in which Hermann begins his masterly analysis of wealth, "Some Goods are *internal*, others *external*, to the individual. An internal good is that which he finds in himself given to him by nature, or which he educates in himself by his own free action, such as muscular strength, health, mental attainments. Everything that the outer world offers for the satisfaction of his wants is an external good to him."

[2] The above classification of goods may be expressed thus :—

Goods are
- external
  - material
    - transferable
    - non-transferable
  - personal
    - transferable
    - non-transferable
- internal-personal-non-transferable.

Another arrangement is more convenient for some purposes :—

Goods are
- material-external
  - transferable
  - non-transferable
- personal
  - external
    - transferable
    - non-transferable
  - internal-non-transferable.

II. II. 2.

When a man's *wealth* is spoken of simply, and without any interpretation clause in the context, it is to be taken to be his stock of two classes of goods.

is his stock of two classes of goods, material goods,

In the first class are those material goods to which he has (by law or custom) private rights of property, and which are therefore transferable and exchangeable. These it will be remembered include not only such things as land and houses, furniture and machinery, and other material things which may be in his single private ownership, but also any shares in public companies, debenture bonds, mortgages and other obligations which he may hold requiring others to pay money or goods to him. On the other hand, the debts which he owes to others may be regarded as negative wealth; and they must be subtracted from his gross possessions before his true net wealth can be found.

Services and other goods, which pass out of existence in the same instant that they come into it, are, of course, not part of the stock of wealth.[1]

and such immaterial external goods as are used to obtain material goods.

In the second class are those immaterial goods which belong to him, are external to him, and serve directly as the means of enabling him to acquire material goods. Thus it excludes all his own personal qualities and faculties, even those which enable him to earn his living; because they are Internal. And it excludes his personal friendships, in so far as they have no direct business value. But it includes his business and professional connections, the organization of his business, and—where such things exist—his property in slaves, in labour dues, etc.

The two classes together constitute *economic goods.*

This use of the term Wealth is in harmony with the usage of ordinary life: and, at the same time, it includes those goods, and only those, which come clearly within the scope of economic science, as defined in Book I; and which may therefore be called *economic goods.* For it includes all those things, external to a man, which (i) belong to him, and do not belong equally to his neighbours, and therefore are distinctly his; and which (ii) are directly capable of a money measure,—a measure that represents on the one side the efforts and sacrifices by which they have been called into existence, and, on the other, the wants which they satisfy.[2]

[1] That part of the value of the share in a trading company which is due to the personal reputation and connection of those who conduct its affairs ought properly to come under the next head as external personal goods. But this point is not of much practical importance.

[2] It is not implied that the owner of transferable goods, if he transferred them, could always realize the whole money value, which they have for him. A well-fitting coat, for instance, may be worth the price charged for it by an expensive tailor to its owner, because he wants it and cannot get it made for less: but he could not sell it for

II, II, 3, 4.

A broader use of the term *wealth* is sometimes required.

§ 3. A broader view of wealth may indeed be taken for some purposes; but then recourse must be had to a special interpretation clause, to prevent confusion. Thus, for instance, the carpenter's skill is as direct a means of enabling him to satisfy other people's material wants, and therefore indirectly his own, as are the tools in his work-basket; and perhaps it may be convenient to have a term which will include it as part of wealth in a broader use. Pursuing the lines indicated by Adam Smith,[1] and followed by most continental economists, we may define *personal wealth* so as to include all those energies, faculties, and habits which directly contribute to making people industrially efficient; together with those business connections and associations of any kind, which we have already reckoned as part of wealth in the narrower use of the term. Industrial faculties have a further claim to be regarded as economic in the fact that their value is as a rule capable of some sort of indirect measurement.[2]

Personal wealth.

The question whether it is ever worth while to speak of them as wealth is merely one of convenience, though it has been much discussed as if it were one of principle.

A broad term to include all forms of private wealth.

Confusion would certainly be caused by using the term " wealth " by itself when we desire to include a person's industrial qualities. " Wealth " simply should always mean external wealth only. But little harm, and some good seems likely to arise from the occasional use of the phrase " material and personal wealth."

But we still have to take account of the individual's share of the common wealth.

§ 4. But we still have to take account of those material goods which are common to him with his neighbours; and which therefore it would be a needless trouble to mention when comparing his wealth with theirs; though they may be important for some purposes, and especially for comparisons between the economic conditions of distant places or distant times.

These goods consist of the benefits which he derives from living in a certain place at a certain time, and being a member of a certain

half that sum. The successful financier who has spent £50,000 on having a house and grounds made to suit his own special fancy, is from one point of view right in reckoning them in the inventory of his property at their cost price : but, should he fail, they will not form an asset to his creditors of anything like that value.

And in the same way from one point of view we may count the business connection of the solicitor or physician, the merchant or the manufacturer, at the full equivalent of the income he would lose if he were deprived of it; while yet we must recognize that its exchange value, *i.e.* the value which he could get for it by selling it, is much less than that.

[1] Comp. *Wealth of Nations*, Bk. II. ch. II.

[2] " The bodies of men are without doubt the most valuable treasure of a country," said Davenant in the seventeenth century; and similar phrases have been common whenever the trend of political development has made men anxious that the population should increase fast.

state or community; they include civil and military security, and the right and opportunity to make use of public property and institutions of all kinds, such as roads, gaslight, etc., and rights to justice or to a free education. The townsman and the countryman have each of them for nothing many advantages which the other either cannot get at all, or can get only at great expense. Other things being equal, one person has more real wealth in its broadest sense than another, if the place in which the former lives has a better climate, better roads, better water, more wholesome drainage; and again better newspapers, books, and places of amusement and instruction. House-room, food and clothing, which would be insufficient in a cold climate, may be abundant in a warm climate: on the other hand, that warmth which lessens men's physical needs, and makes them rich with but a slight provision of material wealth, makes them poor in the energy that procures wealth. II, II, 5.

Many of these things are *collective goods*; *i.e.* goods which are not in private ownership. And this brings us to consider wealth from the social, as opposed to the individual point of view. *Collective goods.*

§ 5. Let us then look at those elements of the wealth of a nation which are commonly ignored when estimating the wealth of the individuals composing it. The most obvious forms of such wealth are public material property of all kinds, such as roads and canals, buildings and parks, gasworks and waterworks; though unfortunately many of them have been secured not by public savings, but by public borrowings, and there is the heavy "negative" wealth of a large debt to be set against them. In a broad view of national wealth

But the Thames has added more to the wealth of England than all its canals, and perhaps even than all its railroads. And though the Thames is a free gift of nature (except in so far as its navigation has been improved), while the canal is the work of man, yet we ought for many purposes to reckon the Thames a part of England's wealth. account must be taken of free goods and of

German economists often lay stress on the non-material elements of national wealth; and it is right to do this in some problems relating to national wealth, but not in all. Scientific knowledge indeed, wherever discovered, soon becomes the property of the whole civilized world, and may be considered as cosmopolitan rather than as specially national wealth. The same is true of mechanical inventions and of many other improvements in the arts of production; and it is true of music. But those kinds of literature which lose their force by translation, may be regarded as in a special sense the wealth of those nations in whose language they are the organization of society or the State.

II, II, 5. written. And the organization of a free and well-ordered State is to be regarded for some purposes as an important element of national wealth.

But national wealth includes the individual as well as the collective property of its members. And in estimating the aggregate sum of their individual wealth, we may save some trouble by omitting all debts and other obligations due to one member of a nation from another. For instance, so far as the English national debt and the bonds of an English railway are owned within the nation, we can adopt the simple plan of counting the railway itself as part of the national wealth, and neglecting railway and government bonds altogether. But we still have to deduct for those bonds etc. issued by the English Government or by private Englishmen, and held by foreigners; and to add for those foreign bonds etc. held by Englishmen.[1]

Debts from one member of a nation to another may be omitted.

Cosmopolitan wealth differs from national wealth much as that differs from individual wealth. In reckoning it, debts due from members of one nation to those of another may conveniently be omitted from both sides of the account. Again, just as rivers are important elements of national wealth, the ocean is one of the most valuable properties of the world. The notion of cosmopolitan wealth

Cosmopolitan wealth.

[1] The value of a business may be to some extent due to its having a monopoly, either a complete monopoly, secured perhaps by a patent; or a partial monopoly, owing to its wares being better known than others which are really equally good; and in so far as this is the case the business does not add to the real wealth of the nation. If the monopoly were broken down, the diminution of national wealth due to the disappearance of its value would generally be more than made up, partly by the increased value of rival businesses, and partly by the increased purchasing power of the money representing the wealth of other members of the community. (It should, however, be added that in some exceptional cases, the price of a commodity may be lowered in consequence of its production being monopolized: but such cases are very rare, and may be neglected for the present.)

Again, business connections and trade reputations add to the national wealth, only in so far as they bring purchasers into relation with those producers who will meet their real wants most fully for a given price; or in other words, only in so far as they increase the extent to which the efforts of the community as a whole meet the wants of the community as a whole. Nevertheless when we are estimating national wealth, not indirectly as the aggregate of individual wealth, we must allow for these businesses at their full value, even though this partly consists of a monopoly which is not used for the public benefit. For the injury they do to rival producers was allowed for in counting up the values of the businesses of those rivals; and the injury done to consumers by raising the price of the produce, which they buy, was allowed for in reckoning the purchasing power of their means, so far as this particular commodity is concerned.

A special case of this is the organization of credit. It increases the efficiency of production in the country, and thus adds to national wealth. And the power of obtaining credit is a valuable asset to any individual trader. If, however, any accident should drive him out of business, the injury to national wealth is something less than the whole value of that asset; because some part at least of the business, which he would have done, will now be done by others with the aid of some part at least of the capital which he would have borrowed.

There are similar difficulties as to how far money is to be reckoned as part of national wealth; but to treat them thoroughly would require us to anticipate a good deal of the theory of money.

is indeed nothing more than that of national wealth extended over the whole area of the globe.

The juridical basis of rights to wealth.

Individual and national rights to wealth rest on the basis of civil and international law, or at least of custom that has the force of law. An exhaustive investigation of the economic conditions of any time and place requires therefore an inquiry into law and custom; and economics owes much to those who have worked in this direction. But its boundaries are already wide; and the historical and juridical bases of the conceptions of property are vast subjects which may best be discussed in separate treatises.

Value. Price is taken provisionally to represent general purchasing power.

§ 6. The notion of *Value* is intimately connected with that of Wealth; and a little may be said about it here. "The word *value*," says Adam Smith, "has two different meanings, and sometimes expresses the utility of some particular object and sometimes the power of purchasing other goods which the possession of that object conveys." But experience has shown that it is not well to use the word in the former sense.

The value, that is the exchange value, of one thing in terms of another at any place and time, is the amount of that second thing which can be got there and then in exchange for the first. Thus the term value is relative, and expresses the relation between two things at a particular place and time.

Civilized countries generally adopt gold or silver or both as money. Instead of expressing the values of lead and tin, and wood, and corn and other things in terms of one another, we express them in terms of money in the first instance; and call the value of each thing thus expressed its *price*. If we know that a ton of lead will exchange for fifteen sovereigns at any place and time, while a ton of tin will exchange for ninety sovereigns, we say that their prices then and there are £15 and £90 respectively, and we know that the value of a ton of tin in terms of lead is six tons then and there.

The price of every thing rises and falls from time to time and place to place; and with every such change the purchasing power of money changes so far as that thing goes. If the purchasing power of money rises with regard to some things, and at the same time falls equally with regard to equally important things, its general purchasing power (or its power of purchasing things in general) has remained stationary. This phrase conceals some difficulties, which we must study later on. But meanwhile we may take it in its popular sense, which is sufficiently clear; and we may throughout this volume neglect possible changes in the general purchasing power of money. Thus the price of anything will be taken as representative

II, II, 6. of its exchange value relatively to things in general, or in other words as representative of its general purchasing power.[1]

But if inventions have increased man's power over nature very much, then the real value of money is better measured for some purposes in labour than in commodities. This difficulty however will not much affect our work in the present volume, which is only a study of the " Foundations " of economics.

[1] As Cournot points out (*Principes Mathématiques de la Théorie des Richesses*, ch. II.), we get the same sort of convenience from assuming the existence of a standard of uniform purchasing power by which to measure value, that astronomers do by assuming that there is a " mean sun " which crosses the meridian at uniform intervals, so that the clock can keep pace with it; whereas the actual sun crosses the meridian sometimes before and sometimes after noon as shown by the clock.

CHAPTER III

PRODUCTION. CONSUMPTION. LABOUR. NECESSARIES

§ 1. MAN cannot create material things. In the mental and moral world indeed he may produce new ideas; but when he is said to produce material things, he really only produces utilities; or in other words, his efforts and sacrifices result in changing the form or arrangement of matter to adapt it better for the satisfaction of wants. All that he can do in the physical world is either to readjust matter so as to make it more useful, as when he makes a log of wood into a table; or to put it in the way of being made more useful by nature, as when he puts seed where the forces of nature will make it burst out into life.[1] II. III, 1.

Man cannot produce matter, but only utilities inherent in matter.

It is sometimes said that traders do not produce: that while the cabinet-maker produces furniture, the furniture-dealer merely sells what is already produced. But there is no scientific foundation for this distinction. They both produce utilities, and neither of them can do more: the furniture-dealer moves and rearranges matter so as to make it more serviceable than it was before, and the carpenter does nothing more. The sailor or the railway-man who carries coal above ground produces it, just as much as the miner who carries it underground; the dealer in fish helps to move on fish from where it is of comparatively little use to where it is of greater use, and the fisherman does no more. It is true that there are often more traders than are necessary; and that, whenever that is the case, there is a waste. But there is also waste if there are two men to a plough which can be well worked by one man; in both cases all those who are at work produce, though they may produce but little. Some writers have revived the mediæval attacks on trade on the ground that it does not produce. But they have not aimed at the right mark. They should have attacked the imperfect organization of trade, particularly of retail trade.[2]

The trader produces utilities.

Consumption may be regarded as negative production. Just as

[1] Bacon, *Novum Organum* IV., says "Ad opera nil aliud potest homo quam ut corpora naturalia admoveat et amoveat, reliqua natura intus agit" (quoted by Bonar, *Philosophy and Political Economy*, p. 249).

[2] Production, in the narrow sense, changes the form and nature of products. Trade and transport change their external relations.

II, III, 2.

Man can consume, as he can produce, only utilities.

man can produce only utilities, so he can consume nothing more. He can produce services and other immaterial products, and he can consume them. But as his production of material products is really nothing more than a rearrangement of matter which gives it new utilities; so his consumption of them is nothing more than a disarrangement of matter, which diminishes or destroys its utilities. Often indeed when he is said to consume things, he does nothing more than to hold them for his use, while, as Senior says, they "are destroyed by those numerous gradual agents which we call collectively *time*."[1] As the "producer" of wheat is he who puts seed where nature will make it grow, so the "consumer" of pictures, of curtains, and even of a house or a yacht does little to wear them out himself; but he uses them while time wastes them.

Consumers' and producers' goods.

Another distinction to which some prominence has been given, but which is vague and perhaps not of much practical use, is that between *consumers' goods* (called also *consumption goods*, or again *goods of the first order*), such as food, clothes, etc., which satisfy wants *directly* on the one hand; and, on the other hand, *producers' goods* (called also *production goods*, or again *instrumental*, or again *intermediate goods*), such as ploughs and looms and raw cotton, which satisfy wants *indirectly* by contributing towards the production of the first class of goods.[2]

Nearly all labour is in some sense productive.

§ 2. All labour is directed towards producing some effect. For though some exertions are taken merely for their own sake, as when a game is played for amusement, they are not counted as labour. We may define *labour* as any exertion of mind or body undergone partly or wholly with a view to some good other than the pleasure derived directly from the work.[3] And if we had to make a fresh start it would be best to regard all labour as productive except that

[1] *Political Economy*, p. 54. Senior would like to substitute the verb "to use" for the verb "to consume."

[2] Thus flour to be made into a cake when already in the house of the consumer, is treated by some as a consumers' good; while not only the flour, but the cake itself is treated as a producers' good when in the hand of the confectioner. Carl Menger (*Volkswirthschaftslehre*, ch. I. § 2) says bread belongs to the first order, flour to the second, a flour mill to the third order and so on. It appears that if a railway train carries people on a pleasure excursion, also some tins of biscuits, and milling machinery and some machinery that is used for making milling machinery; then the train is at one and the same time a good of the first, second, third and fourth orders.

[3] This is Jevons' definition (*Theory of Political Economy*, ch. v.), except that he includes only painful exertions. But he himself points out how painful idleness often is. Most people work more than they would if they considered only the direct pleasure resulting from the work; but in a healthy state, pleasure predominates over pain in a great part even of the work that is done for hire. Of course the definition is elastic; an agricultural labourer working in his garden in the evening thinks chiefly of the fruit of his labours; a mechanic returning home after a day of sedentary toil finds positive pleasure in his garden work, but he too cares a good deal about the fruit of his labour; while a rich man working in like manner, though he may take a pride in doing it well, will probably care little for any pecuniary saving that he effects by it.

which failed to promote the aim towards which it was directed, and so produced no utility. But in all the many changes which the meaning of the word "productive" has undergone, it has had special reference to stored-up wealth, to the comparative neglect and sometimes even to the exclusion of immediate and transitory enjoyment;[1] and an almost unbroken tradition compels us to regard the central notion of the word as relating to the provision for the wants of the future rather than those of the present. It is true that all wholesome enjoyments, whether luxurious or not, are legitimate ends of action both public and private; and it is true that the enjoyment of luxuries affords an incentive to exertion, and promotes progress in many ways. But if the efficiency and energy of industry are the same, the true interest of a country is generally advanced by the subordination of the desire for transient luxuries to the attainment of those more solid and lasting resources which will assist industry in its future work, and will in various ways tend to make life larger. This general idea has been in solution, as it were, in all stages of economic theory; and has been precipitated by different writers into various hard and fast distinctions by which certain trades have been marked off as productive and certain others as unproductive.

But that labour is generally said to be specially productive which provides for the wants of the future rather than the present.

For instance, many writers even of recent times have adhered to Adam Smith's plan of classing domestic servants as unproductive. There is doubtless in many large houses a superabundance of servants, some of whose energies might with advantage to the community be transferred to other uses: but the same is true of the greater part of those who earn their livelihood by distilling whisky; and yet no economist has proposed to call them unproductive. There is no distinction in character between the work of the baker who provides bread for a family, and that of the cook who boils potatoes. If the baker should be a confectioner, or fancy baker, it is probable that he spends at least as much of his time as the domestic cook does, on

The work of domestic servants is not necessarily unproductive.

[1] Thus the Mercantilists who regarded the precious metals, partly because they were imperishable, as wealth in a fuller sense than anything else, regarded as unproductive or "sterile" all labour that was not directed to producing goods for exportation in exchange for gold and silver. The Physiocrats thought all labour sterile which consumed an equal value to that which it produced; and regarded the agriculturist as the only productive worker, because his labour alone (as they thought) left it a net surplus of stored-up wealth. Adam Smith softened down the Physiocratic definition; but still he considered that agricultural labour was more productive than any other. His followers discarded this distinction; but they have generally adhered, though with many differences in points of detail, to the notion that productive labour is that which tends to increase accumulated wealth; a notion which is implied rather than stated in the celebrated chapter of *The Wealth of Nations* which bears the title, "On the Accumulation of Capital, or on Productive and Unproductive Labour." (Comp. Travers Twiss, *Progress of Political Economy*, Sect. VI., and the discussions on the word Productive in J. S. Mill's *Essays*, and in his *Principles of Political Economy*.)

II, III, 3. labour that is unproductive in the popular sense of providing unnecessary enjoyments.

Provisional definition of productive.

Whenever we use the word *Productive* by itself, it is to be understood to mean *productive of the means of production, and of durable sources of enjoyment.* But it is a slippery term, and should not be used where precision is needed.[1]

If ever we want to use it in a different sense, we must say so: for instance we may speak of labour as *productive of necessaries, etc.*

Productive consumption.

Productive consumption, when employed as a technical term, is commonly defined as the use of wealth in the production of further wealth; and it should properly include not all the consumption of productive workers, but only that which is necessary for their efficiency. The term may perhaps be useful in studies of the accumulation of material wealth. But it is apt to mislead. For consumption is the end of production; and all wholesome consumption is productive of benefits, many of the most worthy of which do not directly contribute to the production of material wealth.[2]

Necessaries are things which meet wants that must be satisfied. But this account is ambiguous.

§ 3. This brings us to consider the term Necessaries. It is common to distinguish necessaries, comforts, and luxuries; the first class including all things required to meet wants which *must* be satisfied, while the latter consist of things that meet wants of a less urgent character. But here again there is a troublesome ambiguity. When we say that a want *must* be satisfied, what are the consequences

[1] Among the means of production are included the necessaries of labour but not ephemeral luxuries; and the maker of ices is thus classed as unproductive whether he is working for a pastry-cook, or as a private servant in a country house. But a bricklayer engaged in building a theatre is classed as productive. No doubt the division between permanent and ephemeral sources of enjoyment is vague and unsubstantial. But this difficulty exists in the nature of things and cannot be completely evaded by any device of words. We can speak of an increase of tall men relatively to short, without deciding whether all those above five feet nine inches are to be classed as tall, or only those above five feet ten. And we can speak of the increase of productive labour at the expense of unproductive without fixing on any rigid, and therefore arbitrary line of division between them. If such an artificial line is required for any particular purpose, it must be drawn explicitly for the occasion. But in fact such occasions seldom or never occur.

[2] All the distinctions in which the word Productive is used are very thin and have a certain air of unreality. It would hardly be worth while to introduce them now: but they have a long history; and it is probably better that they should dwindle gradually out of use, rather than be suddenly discarded.

The attempt to draw a hard and fast line of distinction where there is no real discontinuity in nature has often done more mischief, but has perhaps never led to more quaint results, than in the rigid definitions which have been sometimes given of this term Productive. Some of them for instance lead to the conclusion that a singer in an opera is unproductive, that the printer of the tickets of admission to the opera is productive; while the usher who shows people to their places is unproductive, unless he happens to sell programmes, and then he is productive. Senior points out that "a cook is not said to *make* roast meat but to *dress* it; but he is said to *make* a pudding. . . . A tailor is said to *make* cloth into a coat, a dyer is not said to *make* undyed cloth into dyed cloth. The change produced by the dyer is perhaps greater than that produced by the tailor, but the cloth in passing through the tailor's hands changes its name; in passing through the dyer's it does not: the dyer has not produced a *new name*, nor consequently a *new thing*." *Pol. Econ.* pp. 51, 2.

which we have in view if it is not satisfied? Do they include death? Or do they extend only to the loss of strength and vigour? In other words, are necessaries the things which are necessary for life, or those which are necessary for efficiency?

The term Necessaries is elliptical.

The term Necessaries, like the term Productive, has been used elliptically, the subject to which it refers being left to be supplied by the reader; and since the implied subject has varied, the reader has often supplied one which the writer did not intend, and thus misunderstood his drift. In this, as in the preceding case, the chief source of confusion can be removed by supplying explicitly in every critical place that which the reader is intended to understand.

Necessaries for existence and for efficiency.

The older use of the term Necessaries was limited to those things which were sufficient to enable the labourers, taken one with another, to support themselves and their families. Adam Smith and the more careful of his followers observed indeed variations in the standard of comfort and "decency": and they recognized that differences of climate and differences of custom make things necessary in some cases, which are superfluous in others.[1] But Adam Smith was influenced by reasonings of the Physiocrats: they were based on the condition of the French people in the eighteenth century, most of whom had no notion of any necessaries beyond those which were required for mere existence. In happier times, however, a more careful analysis has made it evident that there is for each rank of industry, at any time and place, a more or less clearly defined income which is necessary for merely sustaining its members; while there is another and larger income which is necessary for keeping it in full efficiency.[2]

Account must be taken of the conditions of place and time and of the habits of living.

It may be true that the wages of any industrial class might have sufficed to maintain a higher efficiency, if they had been spent with perfect wisdom. But every estimate of necessaries must be relative to a given place and time; and unless there be a special interpretation clause to the contrary, it may be assumed that the wages will be spent with just that amount of wisdom, forethought, and unselfish-

[1] Compare Carver, *Principles of Political Economy*, p. 474; which called my attention to Adam Smith's observation that customary decencies are in effect necessaries.

[2] Thus in the South of England population has increased during the last hundred years at a fair rate, allowance being made for migration. But the efficiency of labour, which in earlier times was as high as that in the North of England, has sunk relatively to the North; so that the low-waged labour of the South is often dearer than the more highly-paid labour of the North. We cannot thus say whether the labourers in the South have been supplied with necessaries, unless we know in which of these two senses the word is used. They have had the bare necessaries for existence and the increase of numbers, but apparently they have not had the necessaries for efficiency. It must however be remembered that the strongest labourers in the South have constantly migrated to the North; and that the energies of those in the North have been raised by their larger share of economic freedom and of the hope of rising to a higher position. See Mackay in *Charity Organization Journal*, Feb. 1891.

II, III, 4.

Necessaries.

ness, which prevails in fact among the industrial class under discussion. With this understanding we may say that the income of any class in the ranks of industry is below its *necessary* level, when any increase in their income would in the course of time produce a more than proportionate increase in their efficiency. Consumption may be economized by a change of habits, but any stinting of necessaries is wasteful.[1]

Illustration. Necessaries of unskilled labour.

§ 4. Some detailed study of the necessaries for efficiency of different classes of workers will have to be made, when we come to inquire into the causes that determine the supply of efficient labour. But it will serve to give some definiteness to our ideas, if we consider here what are the necessaries for the efficiency of an ordinary agricultural or of an unskilled town labourer and his family, in England, in this generation. They may be said to consist of a well-drained dwelling with several rooms, warm clothing, with some changes of underclothing, pure water, a plentiful supply of cereal food, with a moderate allowance of meat and milk, and a little tea, etc., some education and some recreation, and lastly, sufficient freedom for his wife from other work to enable her to perform properly her maternal and her household duties. If in any district unskilled labour is deprived of any of these things, its efficiency will suffer in the same way as that of a horse that is not properly tended, or a steam-engine that has an inadequate supply of coals. All consumption up to this limit is strictly productive consumption: any stinting of this consumption is not economical, but wasteful.

There is waste when any one consumes less than is necessary.

Conventional necessaries.

In addition, perhaps, some consumption of alcohol and tobacco, and some indulgence in fashionable dress are in many places so habitual, that they may be said to be *conventionally necessary*, since in order to obtain them the average man and woman will sacrifice some things which are necessary for efficiency. Their wages are therefore less than are practically necessary for efficiency, unless they provide not only for what is strictly necessary consumption, but include also a certain amount of conventional necessaries.[2]

[1] If we considered an individual of exceptional abilities we should have to take account of the fact that there is not likely to be the same close correspondence beween the real value of his work for the community and the income which he earns by it, that there is in the case of an ordinary member of any industrial class. And we should have to say that all his consumption is strictly productive and necessary, so long as by cutting off any part of it he would diminish his efficiency by an amount that is of more real value to him or the rest of the world than he saved from his consumption. If a Newton or a Watt could have added a hundredth part to his efficiency by doubling his personal expenditure, the increase in his consumption would have been truly productive. As we shall see later on, such a case is analogous to additional cultivation of rich land that bears a high rent: it may be profitable though the return to it is less than in proportion to the previous outlay.

[2] Compare the distinction between "Physical and Political Necessaries" in James Steuart's *Inquiry*, A.D. 1767, II, XXI.

The consumption of conventional necessaries by productive workers is commonly classed as productive consumption; but strictly speaking it ought not to be; and in critical passages a special interpretation clause should be added to say whether or not they are included. II, III, 4.

It should however be noticed that many things which are rightly described as superfluous luxuries, do yet, to some extent, take the place of necessaries; and to that extent their consumption is productive when they are consumed by producers.[1]

[1] Thus a dish of green peas in March, costing perhaps ten shillings, is a superfluous luxury: but yet it is wholesome food, and does the work perhaps of three pennyworth of cabbage; or even, since variety undoubtedly conduces to health, a little more than that. So it may be entered perhaps at the value of fourpence under the head of necessaries, and at that of nine shillings and eightpence under that of superfluities; and its consumption may be regarded as strictly productive to the extent of one fortieth. In exceptional cases, as for instance when the peas are given to an invalid, the whole ten shillings may be well spent, and reproduce their own value.

For the sake of giving definiteness to the ideas it may be well to venture on estimates of necessaries, rough and random as they must be. Perhaps at present prices the strict necessaries for an average agricultural family are covered by fifteen or eighteen shillings a week, the conventional necessaries by about five shillings more. For the unskilled labourer in the town a few shillings must be added to the strict necessaries. For the family of the skilled workman living in a town we may take twenty-five or thirty shillings for strict necessaries, and ten shillings for conventional necessaries. For a man whose brain has to undergo great continuous strain the strict necessaries are perhaps two hundred or two hundred and fifty pounds a year if he is a bachelor: but more than twice as much if he has an expensive family to educate. His conventional necessaries depend on the nature of his calling.

CHAPTER IV

INCOME. CAPITAL

II, IV, 1.

Income in its broad use.

§ 1. In a primitive community each family is nearly self-sufficing, and provides most of its own food and clothing and even household furniture. Only a very small part of the income, or comings in, of the family is in the form of money; when one thinks of their income at all, one reckons in the benefits which they get from their cooking utensils, just as much as those which they get from their plough: one draws no distinction between their capital and the rest of their accumulated stock, to which the cooking utensils and the plough alike belong.[1]

Corresponding to *money income*,

But with the growth of a money economy there has been a strong tendency to confine the notion of income to those incomings which are in the form of money; including "payments in kind" (such as the free use of a house, free coals, gas, water), which are given as part of an employee's remuneration, and in lieu of money payments.

we have *trade capital*.

In harmony with this meaning of Income, the language of the market-place commonly regards a man's capital as that part of his wealth which he devotes to acquiring an income in the form of money; or, more generally, to acquisition (*Erwerbung*) by means of trade. It may be convenient sometimes to speak of this as his *trade capital*; which may be defined to consist of those external goods which a person uses in his trade, either holding them to be sold for money or applying them to produce things that are to be sold for money. Among its conspicuous elements are such things as the factory and the business plant of a manufacturer; that is, his machinery, his raw material, any food, clothing, and house-room that he may hold for the use of his employees, and the goodwill of his business.

Its most conspicuous elements

To the things in his possession must be added those to which he

[1] This and similar facts have led some people to suppose not only that some parts of the modern analysis of distribution and exchange are inapplicable to a primitive community; which is true: but also that there are no important parts of it that are applicable; which is not true. This is a striking instance of the dangers that arise from allowing ourselves to become the servants of words, avoiding the hard work that is required for discovering unity of substance underlying variety of form

has a right and from which he is drawing income: including loans which he has made on mortgage or in other ways, and all the command over capital which he may hold under the complex forms of the modern "money market." On the other hand debts owed by him must be deduced from his capital.

This definition of capital from the individual or business point of view is firmly established in ordinary usage; and it will be assumed throughout the present treatise whenever we are discussing problems relating to business in general, and in particular to the supply of any particular group of commodities for sale in open market. Income and capital will be discussed from the point of view of private business in the first half of the chapter; and afterwards the social point of view will be considered.

Net income.

§ 2. If a person is engaged in business, he is sure to have to incur certain outgoings for raw material, the hire of labour, etc. And, in that case, his true or *net income* is found by deducting from his gross income "the outgoings that belong to its production." [1]

Anything which a person does for which he is paid directly or indirectly in money, swells his nominal income; while no services that he performs for himself are commonly reckoned as adding to his nominal income. But, though it is best generally to neglect them when they are trivial, account should for consistency be taken of them, when they are of a kind which people commonly pay for having done for them. Thus a woman who makes her own clothes or a man who digs in his own garden or repairs his own house, is earning income; just as would the dressmaker, gardener or carpenter who might be hired to do the work.

Provisional definition of *net advantages.*

In this connection we may introduce a term of which we shall have to make frequent use hereafter. The need for it arises from the fact that every occupation involves other disadvantages besides the fatigue of the work required in it, and every occupation offers other advantages besides the receipt of money wages. The true reward which an occupation offers to labour has to be calculated by deducting the money value of all its disadvantages from that of all its advantages; and we may describe this true reward as the *net advantages* of the occupation.

Interest of capital.

The payment made by a borrower for the use of a loan for, say, a year is expressed as the ratio which that payment bears to the loan, and is called *interest*. And this term is also used more broadly to represent the money equivalent of the whole income which is derived from capital. It is commonly expressed as a certain percentage on

[1] See a report of a Committee of the British Association, 1878, on the Income Tax.

II, IV, 2. the "capital" sum of the loan. Whenever this is done the capital must not be regarded as a stock of things in general. It must be regarded as a stock of one particular thing, money, which is taken to represent them. Thus £100 may be lent at four per cent., that is for an interest of £4 yearly. And, if a man employs in business a capital stock of goods of various kinds which are estimated as worth £10,000 in all; then £400 a year may be said to represent interest at the rate of four per cent. on that capital, on the supposition that the aggregate money value of the things which constitute it has remained unchanged. He would not, however, be willing to continue the business unless he expected his total net gains from it to exceed interest on his capital at the current rate. These gains are called *profits*.

Profits

Free or floating capital.

The command over goods to a given money value, which can be applied to any purpose, is often described as "free" or "floating" capital.[1]

Earnings of management.

When a man is engaged in business, his profits for the year are the excess of his receipts from his business during the year over his outlay for his business. The difference between the value of his stock of plant, material, etc. at the end and at the beginning of the year is taken as part of his receipts or as part of his outlay, according as there has been an increase or decrease of value. What remains of his profits after deducting interest on his capital at the current rate (allowing, where necessary, for insurance) is generally called his *earnings of undertaking* or *management*. The ratio in which his profits for the year stand to his capital is spoken of as his *rate of profits*. But this phrase, like the corresponding phrase with regard to interest, assumes that the money value of the things which constitute his capital has been estimated: and such an estimate is often found to involve great difficulties.

Rents and Quasi-rents.

When any particular thing, as a house, a piano, or a sewing machine is lent out, the payment for it is often called *Rent*. And economists may follow this practice without inconvenience when they are regarding the income from the point of view of the individual trader. But, as will be argued presently, the balance of advantage seems to lie in favour of reserving the term Rent for the income derived from the free gifts of nature, whenever the discussion of business affairs passes from the point of view of the individual to that

[1] Professor Clark has made the suggestion to distinguish between *Pure Capital* and *Capital Goods*: the former is to correspond to a waterfall which remains stationary; while Capital Goods are the particular things which enter and leave the business, as particular drops pass through the waterfall. He would of course connect interest with pure capital, not with capital goods

of society at large. And for that reason, the term *Quasi-rent* will be used in the present volume for the income derived from machines and other appliances for production made by man. That is to say, any particular machine may yield an income which is of the nature of a rent, and which is sometimes called a Rent; though on the whole, there seems to be some advantage in calling it a Quasi-rent. But we cannot properly speak of the interest yielded by a machine. If we use the term "interest" at all, it must be in relation not to the machine itself, but to its money *value*. For instance if the work done by a machine which cost £100 is worth £4 a year net, that machine is yielding a quasi-rent of £4 which is equivalent to interest at four per cent. on its original cost: but if the machine is worth only £80 now, it is yielding five per cent. on its present value. This however raises some difficult questions of principle, which will be discussed in Book V. II, IV, 3.

§ 3. Next to consider some details relating to capital. It has been classed as Consumption capital, and Auxiliary or Instrumental capital: and though no clear distinction can be drawn between the two classes, it may sometimes be convenient to use the terms, with the understanding that they are vague. Where definiteness is necessary, the terms should be avoided; and explicit enumerations should be given. The general notion of the distinction which the terms are designed to suggest, can be gathered from the following approximate definitions.

Consumption capital.

Consumption capital consists of goods in a form to satisfy wants directly; that is, goods which afford a direct sustenance to the workers, such as food, clothes, house-room, etc.

Auxiliary or instrumental capital.

Auxiliary, or *instrumental, capital* is so called because it consists of all the goods that aid labour in production. Under this head come tools, machines, factories, railways, docks, ships, etc.; and raw materials of all kinds.

But of course a man's clothes assist him in his work and are instrumental in keeping him warm; and he derives a direct benefit from the shelter of his factory as he does from the shelter of his house.[1]

Circulating and fixed capital.

We may follow Mill in distinguishing *circulating capital* "which fulfils the whole of its office in the production in which it is engaged, by a single use," from *fixed capital* "which exists in a durable shape and the return to which is spread over a period of corresponding duration."[2]

[1] See above II, III. 1.

[2] Adam Smith's distinction between fixed and circulating capital turned on the question whether the goods "yield a profit without changing masters" or not.

II, iv, 4.

Transition to the social point of view of income.

§ 4. The customary point of view of the business man is that which is most convenient for the economist to adopt when discussing the production of goods for a market, and the causes which govern their exchange value. But there is a broader point of view which the business man, no less than the economist, must adopt when he studies the causes which govern the material wellbeing of the community as a whole. Ordinary conversation may pass from one point of view to another without any formal note of the change: for if a misunderstanding arises it soon becomes manifest; and confusion is cut short by a question or by a volunteered explanation. But the economist may take no risks of that sort: he must make prominent any change in his point of view or in his uses of terms. His path might have seemed smoother for the time, if he had passed silently from one use to another: but in the long run better progress is made by a clear indication of the meaning attached to each term in every doubtful case.[1]

Let us then during the remainder of this chapter deliberately adopt the *social*, in contrast with the individual point of view: let us look at the production of the community as a whole, and at its total net income available for all purposes. That is, let us revert nearly to the point of view of a primitive people, who are chiefly concerned with the production of desirable things, and with their direct uses; and who are little concerned with exchange and marketing.

In practical matters theoretical completeness may be purchased at too great a cost.

From this point of view income is regarded as including all the benefits which mankind derive at any time from their efforts, in the present and in the past, to turn nature's resources to their best account. The pleasure derived from the beauties of the rainbow, or the sweet taste of the fresh morning air, are left out of the reckoning, not because they are unimportant, nor because the estimate would in any way be vitiated by including them; but solely because reckoning them in would serve no good purpose, while it would add greatly to the length of our sentences and the prolixity of our discussions. For a similar reason it is not worth while to take separate account of the simple services which nearly every one renders to himself, such as putting on his clothes; though there are a few persons who choose to pay others to do such things for them. Their exclusion involves no principle; and time spent by some con-

Ricardo made it turn on whether they are "of slow consumption or require to be frequently reproduced"; but he truly remarks that this is "a division not essential, and in which the line of demarcation cannot be accurately drawn." Mill's modification is generally accepted by modern economists.

[1] Compare above II. i. 3.

troversial writers on discussing it has been wasted. It simply follows the maxim *De minimis non curat lex*. A driver who, not noticing a pool in his way, splashes a passer by is not held to have done him legal injury; though there is no distinction in principle between his act and that of another, who by a similar lack of attention, did serious harm to someone else. II, IV, 4.

A man's present labour yields him income directly, when devoted to his own use; and he looks to be paid for it in some form or another if he devotes it as a matter of business to the service of others. Similarly any useful thing which he has made or acquired in the past, or which has been handed down to him, under the existing institutions of property, by others who have so made or acquired it, is generally a source of material benefit to him directly or indirectly. If he applies it in business, this income generally appears in the form of money. But a broader use of this term is occasionally needed, which embraces the whole income of benefits of every sort which a person derives from the ownership of property however applied: it includes for instance the benefits which he gets from the use of his own piano, equally with those which a piano dealer would win by letting out a piano on hire. The language of common life while averse to so broad a use of the term Income as this even when discussing social problems, yet habitually includes a certain number of forms of income, other than money income.

The Income Tax Commissioners count a dwelling-house inhabited by its owner as a source of taxable income, though it yields its income of comfort directly. They do this, not on any abstract principle; but partly because of the practical importance of house-room, partly because the ownership of a house is commonly treated in a business fashion, and partly because the real income accruing from it can easily be separated off and estimated. They do not claim to establish any absolute distinction in kind between the things which their rule includes, and those which it excludes.

Jevons, regarding the problem from a purely mathematical point of view, was justified in classing all commodities in the hands of consumers as capital. But some writers, while developing this suggestion with great ingenuity, have treated it as a great principle; and that appears to be an error in judgment. A true sense of proportion requires us not to burden our work with the incessant enumeration of details of secondary importance, of which no account is taken in customary discourse, and which cannot even be described without offending against popular conventions.

II, IV, 5.

The correlation of income and capital.

§ 5. This brings us to consider the use of the term *capital* from the point of view of inquiries into the material wellbeing of society as a whole. Adam Smith said that a person's capital is *that part of his stock from which he expects to derive an income*. And almost every use of the term capital, which is known to history, has corresponded more or less closely to a parallel use of the term Income: in almost every use, capital has been that part of a man's stock from which he expects to derive an income.

By far the most important use of the term Capital in general, *i.e.* from the social point of view, is in the inquiry how the three agents of production, land (that is, natural agents), labour and capital, contribute to producing the national income (or the national dividend, as it will be called later on); and how that income is distributed among the three agents. And this is an additional reason for making the terms Capital and Income correlative from the social, as we did from the individual point of view.

Meaning in this treatise of the terms *Capital* and *Land* from the social point of view.

Accordingly it is proposed in this treatise to count as part of capital from the social point of view all things other than land, which yield income that is generally reckoned as such in common discourse; together with similar things in public ownership, such as government factories: the term Land being taken to include all free gifts of nature, such as mines, fisheries, etc., which yield income.

Thus it will include all things held for trade purposes, whether machinery, raw material or finished goods; theatres and hotels; home farms and houses: but not furniture or clothes owned by those who use them. For the former are and the latter are not commonly regarded as yielding income by the world at large, as is shown by the practice of the income tax commissioners.

This usage of the term is in harmony with the common practice of economists of treating social problems in broad outline to start with, and reserving minor details for later consideration: it is in harmony also with their common practice of taking Labour to include those activities, and those only, which are regarded as the source of income in this broader use of the term. Labour together with capital and land thus defined are the sources of all that income of which account is commonly taken in reckoning up the National Income.[1]

[1] Just as for practical purposes it is better not to encumber ourselves with specifying the "income" of benefit which a man derives from the labour of brushing his hat in the morning, so it is better to ignore the element of capital vested in his brush. But no such consideration arises in a merely abstract discussion: and therefore the logical simplicity of Jevons' dictum that commodities in the hands of consumers are capital has some advantages and no disadvantages for mathematical versions of economic doctrines.

Elements of social income that are in danger of being counted twice or of being omitted.

§ 6. Social income may be estimated by adding together the incomes of the individuals in the society in question, whether it be a nation or any other group of persons. We must however not count the same thing twice. If we have counted a carpet at its full value, we have already counted the values of the yarn and the labour that were used in making it; and these must not be counted again. And further, if the carpet was made of wool that was in stock at the beginning of the year, the value of that wool must be deducted from the value of the carpet before the net income of the year is reached; while similar deduction must be made for the wear and tear of machinery and other plant used in making it. This is required by the general rule, with which we started, that true or net income is found by deducting from gross income the outgoings that belong to its production.

But if the carpet is cleaned by domestic servants or at steam scouring works, the value of the labour spent in cleaning it must be counted in separately; for otherwise the results of this labour would be altogether omitted from the inventory of those newly-produced commodities and conveniences which constitute the real income of the country. The work of domestic servants is always classed as "labour" in the technical sense; and since it can be assessed *en bloc* at the value of their remuneration in money and in kind without being enumerated in detail, its inclusion raises no great statistical difficulty. There is however some inconsistency in omitting the heavy domestic work which is done by women and other members of the household, where no servants are kept.

Again, suppose a landowner with an annual income of £10,000 hires a private secretary at a salary of £500, who hires a servant at wages of £50. It may seem that if the incomes of all these three persons are counted in as part of the net income of the country, some of it will be counted twice over, and some three times. But this is not the case. The landlord transfers to his secretary, in return for his assistance, part of the purchasing power derived from the produce of land; and the secretary again transfers part of this to his servant in return for his assistance. The farm produce the value of which goes as rent to the landlord, the assistance which the landlord derives from the work of the secretary, and that which the secretary derives from the work of the servant are independent parts of the real net income of the country; and therefore the £10,000 and the £500 and the £50 which are their money measures, must all be counted in when we are estimating the income of the country. But if the landlord makes an allowance of £500 a year to his son, that must

II, IV, 7, 8. not be counted as an independent income; because no services are rendered for it. And it would not be assessed to the Income tax.

As the *net* payments on account of interest etc. due to an individual—*net*, *i.e.* after deducting those due from him to others—are part of his income, so the money and other things received *net* by a nation from other countries are part of its income.

National income is a better measure of general economic prosperity than national wealth.

§ 7. The money income, or inflow, of wealth gives a measure of a nation's prosperity, which, untrustworthy as it is, is yet in some respects better than that afforded by the money value of its stock of wealth.

For income consists chiefly of commodities in a form to give pleasure directly; while the greater part of national wealth consists of the means of production, which are of service to the nation only in so far as they contribute to producing commodities ready for consumption. And further, though this is a minor point, consumable commodities, being more portable, have more nearly uniform prices all the world over than the things used in producing them: the prices of an acre of good land in Manitoba and Kent differ more than those of a bushel of wheat in the two places.

But if we look chiefly at the income of a country we must allow for the depreciation of the sources from which it is derived. More must be deducted from the income derived from a house if it is made of wood, than if it is made of stone; a stone house counts for more towards the real richness of a country than a wooden house which gives equally good accommodation. Again, a mine may yield for a time a large income, but be exhausted in a few years: in that case, it must be counted as equivalent to a field, or a fishery, which yields a much smaller annual income, but will yield that income permanently.

Prospectiveness and productiveness control the demand for capital and the supply of it.

§ 8. In purely abstract, and especially in mathematical, reasoning the terms Capital and Wealth are used as synonymous almost perforce, except that "land" proper may for some purposes be omitted from Capital. But there is a clear tradition that we should speak of Capital when considering things as agents of production; and that we should speak of Wealth when considering them as results of production, as subjects of consumption and as yielding pleasures of possession. Thus the chief *demand* for capital arises from its productiveness, from the services which it renders, for instance, in enabling wool to be spun and woven more easily than by the unaided hand, or in causing water to flow freely wherever it is wanted instead of being carried laboriously in pails; (though there are other uses of capital, as for instance when it is lent to a spendthrift,

which cannot easily be brought under this head). On the other hand the *supply* of capital is controlled by the fact that, in order to accumulate it, men must act prospectively: they must "wait" and "save," they must sacrifice the present to the future. II, IV, 8.

At the beginning of this Book it was argued that the economist must forego the aid of a complete set of technical terms. He must make the terms in common use serve his purpose in the expression of precise thought, by the aid of qualifying adjectives or other indications in the context. If he arbitrarily assigns a rigid exact use to a word which has several more or less vague uses in the market-place, he confuses business men, and he is in some danger of committing himself to untenable positions. The selection of a normal use for such terms as Income and Capital must therefore be tested by actually working with it.[1]

[1] A short forecast of some of this work may be given here. It will be seen how Capital needs to be considered in regard *both* to the embodied aggregate of the benefits derivable from its use, *and* to the embodied aggregate of the costs of the efforts and of the saving needed for its production: and it will be shown how these two aggregates tend to balance. Thus in V. IV., which may be taken as in some sense a continuation of the present chapter, they will be seen balancing directly in the forecasts of an individual Robinson Crusoe; and—for the greater part at least—in terms of money in the forecasts of a modern business man. In either case both sides of the account must be referred to the same date of time; those that come after that date being "discounted" back to it; and those that come before being "accumulated" up to it.

A similar balancing in regard to the benefits and the costs of capital at large will be found to be a chief corner stone of social economy: although it is true that in consequence of the unequal distribution of wealth, accounts cannot be made up from the social point of view with that clearness of outline that is attainable in the case of an individual, whether a Robinson Crusoe, or a modern business man.

In every part of our discussion of the causes that govern the accumulation and the application of productive resources, it will appear that there is no universal rule that the use of roundabout methods of production is more efficient than direct methods; that there are some conditions under which the investment of effort in obtaining machinery and in making costly provision against future wants is economical in the long run, and others in which it is not: and that capital is accumulated in proportion to the prospectiveness of man on the one hand, and on the other to the absorption of capital by those roundabout methods, which are sufficiently productive to remunerate their adoption. See especially IV. VII. 8; V. IV.; VI. I. 8; and VI. VI. 1.

The broader forces, that govern the production of capital in general and its contribution to the national income, are discussed in IV. VII. IX.–XI.: the imperfect adjustments of the money measures of benefits and costs to their real volume are discussed chiefly in III. III.–V.; IV. VII.; and VI. III.–VIII.; the resulting share in the total product of labour and capital, aided by natural resources, which goes to capital, is discussed chiefly in VI. I. II. VI.–VIII. XI. XII.

Some of the chief incidents in the history of the definitions of Capital are given in Appendix E.

BOOK III

ON WANTS AND THEIR SATISFACTION

CHAPTER I

INTRODUCTORY

III, I, 1, 2.

The relation in which the present Book stands to the remainder of the Volume.

§ 1. THE older definitions of economics described it as the science which is concerned with the production, the distribution, the exchange, and the consumption of wealth. Later experience has shown that the problems of distribution and exchange are so closely connected, that it is doubtful whether anything is to be gained by the attempt to keep them separate. There is however a good deal of general reasoning with regard to the relation of demand and supply which is required as a basis for the practical problems of value, and which acts as an underlying backbone, giving unity and consistency to the main body of economic reasoning. Its very breadth and generality mark it off from the more concrete problems of distribution and exchange to which it is subservient; and therefore it is put together in Book V on "The General Theory of Demand and Supply" which prepares the way for "Distribution and Exchange, or Value."

But first comes the present Book III, a study of Wants and their satisfaction, *i.e.* of demand and consumption: and then Book IV, a study of the agents of production, that is, the agents by whose means wants are satisfied, including man himself, the chief agent and the sole aim of production. Book IV corresponds in general character to that discussion of production to which a large place has been given in nearly all English treatises on general economics during the last two generations; although its relation to the problems of demand and supply has not been made sufficiently clear.

Several causes are bringing into prominence the study of consumption.

§ 2. Until recently the subject of demand or consumption has been somewhat neglected. For important as is the inquiry how to turn our resources to the best account, it is not one which lends itself, so far as the expenditure of private individuals is concerned, to the methods of economics. The common sense of a person who

has had a large experience of life will give him more guidance in such a matter than he can gain from subtle economic analyses; and until recently economists said little on the subject, because they really had not much to say that was not the common property of all sensible people. But recently several causes have combined to give the subject a greater prominence in economic discussions.

The first cause.

The first of these is the growing belief that harm was done by Ricardo's habit of laying disproportionate stress on the side of cost of production, when analysing the causes that determine exchange value. For although he and his chief followers were aware that the conditions of demand played as important a part as those of supply in determining value, yet they did not express their meaning with sufficient clearness, and they have been misunderstood by all but the most careful readers.

The second cause.

Secondly, the growth of exact habits of thought in economics is making people more careful to state distinctly the premises on which they reason. This increased care is partly due to the application by some writers of mathematical language and mathematical habits of thought. It is indeed doubtful whether much has been gained by the use of complex mathematical formulæ. But the application of mathematical habits of thought has been of great service; for it has led people to refuse to consider a problem until they are quite sure what the problem is; and to insist on knowing what is, and what is not intended to be assumed before proceeding further.

This has in its turn compelled a more careful analysis of all the leading conceptions of economics, and especially of demand; for the mere attempt to state clearly how the demand for a thing is to be measured opens up new aspects of the main problems of economics. And though the theory of demand is yet in its infancy, we can already see that it may be possible to collect and arrange statistics of consumption in such a way as to throw light on difficult questions of great importance to public wellbeing.

The third cause.

Lastly, the spirit of the age induces a closer attention to the question whether our increasing wealth may not be made to go further than it does in promoting the general wellbeing; and this again compels us to examine how far the exchange value of any element of wealth, whether in collective or individual use, represents accurately the addition which it makes to happiness and wellbeing.

We will begin with a study of wants in relation to efforts.

We will begin this Book with a short study of the variety of human wants, considered in their relation to human efforts and activities. For the progressive nature of man is one whole. It is only temporarily and provisionally that we can with profit isolate for

III, I, 2. study the economic side of his life; and we ought to be careful to take together in one view the whole of that side. There is a special need to insist on this just now, because the reaction against the comparative neglect of the study of wants by Ricardo and his followers shows signs of being carried to the opposite extreme. It is important still to assert the great truth on which they dwelt somewhat too exclusively; viz. that while wants are the rulers of life among the lower animals, it is to changes in the forms of efforts and activities that we must turn when in search for the keynotes of the history of mankind.

CHAPTER II

WANTS IN RELATION TO ACTIVITIES

The wants of the savage are few;

§ 1. Human wants and desires are countless in number and very various in kind: but they are generally limited and capable of being satisfied. The uncivilized man indeed has not many more than the brute animal; but every step in his progress upwards increases the variety of his needs together with the variety in his methods of satisfying them. He desires not merely larger *quantities* of the things he has been accustomed to consume, but better qualities of those things; he desires a greater choice of things, and things that will satisfy new wants growing up in him.

but civilization brings with it a desire for variety for its own sake.

Thus though the brute and the savage alike have their preferences for choice morsels, neither of them cares much for variety for its own sake. As, however, man rises in civilization, as his mind becomes developed, and even his animal passions begin to associate themselves with mental activities, his wants become rapidly more subtle and more various; and in the minor details of life he begins to desire change for the sake of change, long before he has consciously escaped from the yoke of custom. The first great step in this direction comes with the art of making a fire: gradually he gets to accustom himself to many different kinds of food and drink cooked in many different ways; and before long monotony begins to become irksome to him, and he finds it a great hardship when accident compels him to live for a long time exclusively on one or two kinds of food.

Man's capacity for food is limited.

As a man's riches increase, his food and drink become more various and costly; but his appetite is limited by nature, and when his expenditure on food is extravagant it is more often to gratify the desires of hospitality and display than to indulge his own senses.

but not his craving for distinction:

This brings us to remark with Senior that "Strong as is the desire for variety, it is weak compared with the desire for distinction: a feeling which if we consider its universality, and its constancy, that it affects all men and at all times, that it comes with us from the cradle and never leaves us till we go into the grave, may be pronounced to be the most powerful of human passions." This

III, II, 2, 3. great half-truth is well illustrated by a comparison of the desire for choice and various food with that for choice and various dress.

which is a chief source of the desire for costly dress.

§ 2. That need for dress which is the result of natural causes varies with the climate and the season of year, and a little with the nature of a person's occupations. But in dress conventional wants overshadow those which are natural. Thus in many of the earlier stages of civilization the sumptuary mandates of Law and Custom have rigidly prescribed to the members of each caste or industrial grade, the style and the standard of expense up to which their dress must reach and beyond which they may not go; and part of the substance of these mandates remains now, though subject to rapid change. In Scotland, for instance, in Adam Smith's time many persons were allowed by custom to go abroad without shoes and stockings who may not do so now; and many may still do it in Scotland who might not in England. Again, in England now a well-to-do labourer is expected to appear on Sunday in a black coat and, in some places, in a silk hat; though these would have subjected him to ridicule but a short time ago. There is a constant increase both in that variety and expensiveness which custom requires as a minimum, and in that which it tolerates as a maximum; and the efforts to obtain distinction by dress are extending themselves throughout the lower grades of English society.

But in the upper grades, though the dress of women is still various and costly, that of men is simple and inexpensive as compared with what it was in Europe not long ago, and is to-day in the East. For those men who are most truly distinguished on their own account, have a natural dislike to seem to claim attention by their dress; and they have set the fashion.[1]

House room.

§ 3. House room satisfies the imperative need for shelter from the weather: but that need plays very little part in the effective demand for house room. For though a small but well-built cabin gives excellent shelter, its stifling atmosphere, its necessary uncleanliness, and its want of the decencies and the quiet of life are great evils. It is not so much that they cause physical discomfort as that

[1] A woman may display wealth, but she may not display only her wealth, by her dress; or else she defeats her ends. She must also suggest some distinction of character as well as of wealth; for though her dress may owe more to her dress-maker than to herself, yet there is a traditional assumption that, being less busy than man with external affairs, she can give more time to taking thought as to her dress. Even under the sway of modern fashions, to be "well dressed"—not "expensively dressed"—is a reasonable minor aim for those who desire to be distinguished for their faculties and abilities; and this will be still more the case if the evil dominion of the wanton vagaries of fashion should pass away. For to arrange costumes beautiful in themselves, various and well-adapted to their purposes, is an object worthy of high endeavour; it belongs to the same class, though not to the same rank in that class, as the painting of a good picture.

they tend to stunt the faculties, and limit people's higher activities. With every increase in these activities the demand for larger house room becomes more urgent.[1]

And therefore relatively large and well-appointed house room is, even in the lowest social ranks, at once a "necessary for efficiency,"[2] and the most convenient and obvious way of advancing a material claim to social distinction. And even in those grades in which everyone has house room sufficient for the higher activities of himself and his family, a yet further and almost unlimited increase is desired as a requisite for the exercise of many of the higher social activities.

Wants resulting from activities.

§ 4. It is, again, the desire for the exercise and development of activities, spreading through every rank of society, which leads not only to the pursuit of science, literature and art for their own sake, but to the rapidly increasing demand for the work of those who pursue them as professions. Leisure is used less and less as an opportunity for mere stagnation; and there is a growing desire for those amusements, such as athletic games and travelling, which develop activities rather than indulge any sensuous craving.[3]

Gradations of the desire for excellence.

For indeed the desire for excellence for its own sake, is almost as wide in its range as the lower desire for distinction. Just as the desire for distinction graduates down from the ambition of those who may hope that their names will be in men's mouths in distant lands and in distant times, to the hope of the country lass that the new ribbon she puts on for Easter may not pass unnoticed by her neighbours; so the desire for excellence for its own sake graduates down from that of a Newton, or a Stradivarius, to that of the fisherman who, even when no one is looking and he is not in a hurry, delights in handling his craft well, and in the fact that she is well built and responds promptly to his guidance. Desires of this kind exert a great influence on the supply of the highest faculties and the greatest inventions; and they are not unimportant on the side of demand. For a large part of the demand for the most highly skilled professional services and the best work of the mechanical artisan, arises from the delight that people have in the training of their own faculties,

[1] It is true that many active-minded working men prefer cramped lodgings in a town to a roomy cottage in the country; but that is because they have a strong taste for those activities for which a country life offers little scope.

[2] See Book II. ch. III. § 3.

[3] As a minor point it may be noticed that those drinks which stimulate the mental activities are largely displacing those which merely gratify the senses. The consumption of tea is increasing very fast, while that of alcohol is stationary; and there is in all ranks of society a diminishing demand for the grosser and more immediately stupefying forms of alcohol.

III, II, 4.

and in exercising them by aid of the most delicately adjusted and responsive implements.

In a healthy state new activities pioneer the way for new wants.

Speaking broadly therefore, although it is man's wants in the earliest stages of his development that give rise to his activities, yet afterwards each new step upwards is to be regarded as the development of new activities giving rise to new wants, rather than of new wants giving rise to new activities.

We see this clearly if we look away from healthy conditions of life, where new activities are constantly being developed; and watch the West Indian negro, using his new freedom and wealth not to get the means of satisfying new wants, but in idle stagnation that is not rest; or again look at that rapidly lessening part of the English working classes, who have no ambition and no pride or delight in the growth of their faculties and activities, and spend on drink whatever surplus their wages afford over the bare necessaries of a squalid life.

The theory of wants can claim no supremacy over the theory of efforts.

It is not true therefore that "the Theory of Consumption is the scientific basis of economics."[1] For much that is of chief interest in the science of wants, is borrowed from the science of efforts and activities. These two supplement one another; either is incomplete without the other. But if either, more than the other, may claim to be the interpreter of the history of man, whether on the economic side or any other, it is the science of activities and not that of wants; and McCulloch indicated their true relations when, discussing "the progressive nature of man,"[2] he said :—"The gratification of a want or a desire is merely a step to some new pursuit. In every stage of his progress he is destined to contrive and invent, to engage in new undertakings; and when these are accomplished to enter with fresh energy upon others."

From this it follows that such a discussion of demand as is possible at this stage of our work, must be confined to an elementary analysis of an almost purely formal kind. The higher study of consumption must come after, and not before, the main body of economic analysis; and, though it may have its beginning within the proper domain of

[1] This doctrine is laid down by Banfield, and adopted by Jevons as the key of his position. It is unfortunate that here as elsewhere Jevons' delight in stating his case strongly has led him to a conclusion, which not only is inaccurate, but does mischief by implying that the older economists were more at fault than they really were. Banfield says "the first proposition of the theory of consumption is that the satisfaction of every lower want in the scale creates a desire of a higher character." And if this were true, the above doctrine, which he bases on it, would be true also. But, as Jevons points out (*Theory*, 2nd Ed. p. 59), it is not true: and he substitutes for it the statement that the satisfaction of a lower want permits a higher want to manifest itself. That is a true and indeed an identical proposition: but it affords no support to the claims of the Theory of Consumption to supremacy.

[2] *Political Economy*, ch. II.

economics, it cannot find its conclusion there, but must extend far beyond.[1] III, II, 4.

[1] The formal classification of Wants is a task not without interest; but it is not needed for our purposes. The basis of most modern work in this direction is to be found in Hermann's *Staatswirthschaftliche Untersuchungen*, Ch. II., where wants are classified as "absolute and relative, higher and lower, urgent and capable of postponement, positive and negative, direct and indirect, general and particular, constant and interrupted, permanent and temporary, ordinary and extraordinary, present and future, individual and collective, private and public."

Some analysis of wants and desires is to be found in the great majority of French and other Continental treatises on economics even of the last generation; but the rigid boundary which English writers have ascribed to their science has excluded such discussions. And it is a characteristic fact that there is no allusion to them in Bentham's *Manual of Political Economy*, although his profound analysis of them in the *Principles of Morals and Legislation* and in the *Table of the Springs of Human Action* has exercised a wide-spread influence. Hermann has studied Bentham; and on the other hand Banfield, whose lectures were perhaps the first ever given in an English University that owed much directly to German economic thought, acknowledges special obligations to Hermann. In England the way was prepared for Jevons' excellent work on the theory of wants, by Bentham himself; by Senior, whose short remarks on the subject are pregnant with far-reaching hints; by Banfield, and by the Australian Hearn. Hearn's *Plutology or Theory of the Efforts to satisfy Human Wants* is at once simple and profound: it affords an admirable example of the way in which detailed analysis may be applied to afford a training of a very high order for the young, and to give them an intelligent acquaintance with the economic conditions of life, without forcing upon them any particular solution of those more difficult problems on which they are not yet able to form an independent judgment. At about the same time as Jevons' *Theory* appeared, Carl Menger gave a great impetus to the subtle and interesting studies of wants and utilities by the Austrian school of economists: they had already been initiated by von Thünen, as is indicated in the Preface to this Volume.

CHAPTER III

GRADATIONS OF CONSUMERS' DEMAND

III, III, 1.

The consumers' demand governs traders' demand.

§ 1. WHEN a trader or a manufacturer buys anything to be used in production, or be sold again, his demand is based on his anticipations of the profits which he can derive from it. These profits depend at any time on speculative risks and on other causes, which will need to be considered later on. But in the long run the price which a trader or manufacturer can afford to pay for a thing depends on the prices which consumers will pay for it, or for the things made by aid of it. The ultimate regulator of all demand is therefore consumers' demand. And it is with that almost exclusively that we shall be concerned in the present Book.

Utility and Want are used as correlative terms, having no ethical or prudential connotations.

Utility is taken to be correlative to Desire or Want. It has been already argued that desires cannot be measured directly, but only indirectly by the outward phenomena to which they give rise: and that in those cases with which economics is chiefly concerned the measure is found in the price which a person is willing to pay for the fulfilment or satisfaction of his desire. He may have desires and aspirations which are not consciously set for any satisfaction: but for the present we are concerned chiefly with those which do so aim; and we assume that the resulting satisfaction corresponds in general fairly well to that which was anticipated when the purchase was made.[1]

The *law of satiable wants* or *diminishing utility*

There is an endless variety of wants, but there is a limit to each separate want. This familiar and fundamental tendency of human nature may be stated in the *law of satiable wants* or *of diminishing utility* thus :—The *total utility* of a thing to anyone (that is, the total

[1] It cannot be too much insisted that to measure directly, or *per se*, either desires or the satisfaction which results from their fulfilment is impossible, if not inconceivable. If we could, we should have two accounts to make up, one of desires, and the other of realized satisfactions. And the two might differ considerably. For, to say nothing of higher aspirations, some of those desires with which economics is chiefly concerned, and especially those connected with emulation, are impulsive; many result from the force of habit; some are morbid and lead only to hurt; and many are based on expectations that are never fulfilled. (See above I. II. 3, 4.) Of course many satisfactions are not common pleasures, but belong to the development of a man's higher nature, or to use a good old word, to his *beatification*; and some may even partly result from self-abnegation. (See I. II. 1.) The two direct measurements then might differ. But as neither of them is possible, we fall back on the measurement which economics supplies, of the motive or moving force to action: and we make it serve, with all its faults, *both* for the desires which prompt activities and for the satisfactions that result from them. (Compare "Some remarks on Utility" by Prof. Pigou in the *Economic Journal* for March, 1903.)

pleasure or other benefit it yields him) increases with every increase in his stock of it, but not as fast as his stock increases. If his stock of it increases at a uniform rate the benefit derived from it increases at a diminishing rate. In other words, the additional benefit which a person derives from a given increase of his stock of a thing, diminishes with every increase in the stock that he already has.

Total utility.

That part of the thing which he is only just induced to purchase may be called his *marginal purchase*, because he is on the margin of doubt whether it is worth his while to incur the outlay required to obtain it. And the utility of his marginal purchase may be called the *marginal utility* of the thing to him. Or, if instead of buying it, he makes the thing himself, then its marginal utility is the utility of that part which he thinks it only just worth his while to make. And thus the law just given may be worded :—

Marginal purchase

Marginal utility.

The marginal utility of a thing to anyone diminishes with every increase in the amount of it he already has.[1]

There is however an implicit condition in this law which should be made clear. It is that we do not suppose time to be allowed for any alteration in the character or tastes of the man himself. It is therefore no exception to the law that the more good music a man hears, the stronger is his taste for it likely to become; that avarice and ambition are often insatiable; or that the virtue of cleanliness and the vice of drunkenness alike grow on what they feed upon. For in such cases our observations range over some period of time; and the man is not the same at the beginning as at the end of it. If we take a man as he is, without allowing time for any change in his character, the marginal utility of a thing to him diminishes steadily with every increase in his supply of it.[2]

It is implied that the consumer's character is unchanged.

§ 2. Now let us translate this law of diminishing utility into terms of price. Let us take an illustration from the case of a commodity

Translation of the law into

[1] See Note I in the Mathematical Appendix at the end of the Volume. This law holds a priority of position to the *law of diminishing return* from land; which however has the priority in time; since it was the first to be subjected to a rigid analysis of a semi-mathematical character. And if by anticipation we borrow some of its terms, we may say that the *return* of pleasure which a person gets from each additional *dose* of a commodity diminishes till at last a margin is reached at which it is no longer worth his while to acquire any more of it.

The term *marginal utility* (*Grenz-nutz*) was first used in this connection by the Austrian Wieser. It has been adopted by Prof. Wicksteed. It corresponds to the term *Final* used by Jevons, to whom Wieser makes his acknowledgments in the Preface (p xxiii, of the English edition). His list of anticipators of his doctrine is headed by Gossen, 1854.

[2] It may be noticed here, though the fact is of but little practical importance, that a small quantity of a commodity may be insufficient to meet a certain special want; and then there will be a more than proportionate increase of pleasure when the consumer gets enough of it to enable him to attain the desired end. Thus, for instance, anyone would derive less pleasure in proportion from ten pieces of wall-paper than from twelve, if the latter would, and the former would not, cover the whole of the walls of his room. Or again a very short concert or a holiday may fail

III, III, 3. terms of price.

such as tea, which is in constant demand and which can be purchased in small quantities. Suppose, for instance, that tea of a certain quality is to be had at 2*s.* per lb. A person might be willing to give 10*s.* for a single pound once a year rather than go without it altogether; while if he could have any amount of it for nothing he would perhaps not care to use more than 30 lbs. in the year. But as it is, he buys perhaps 10 lbs. in the year; that is to say, the difference between the satisfaction which he gets from buying 9 lbs. and 10 lbs. is enough for him to be willing to pay 2*s.* for it: while the fact that he does not buy an eleventh pound, shows that he does not think that it would be worth an extra 2*s.* to him. That is, 2*s.* a pound measures the utility to him of the tea which lies at the margin or terminus or end of his purchases; it measures the marginal utility to him. If the price which he is just willing to pay for any pound be called his *demand price*, then 2*s.* is his *marginal demand price*. And our law may be worded:—

Marginal demand price.

The larger the amount of a thing that a person has the less, other things being equal (*i.e.* the purchasing power of money, and the amount of money at his command being equal), will be the price which he will pay for a little more of it: or in other words his marginal demand price for it diminishes.

His demand becomes *efficient*, only when the price which he is willing to offer reaches that at which others are willing to sell.

This last sentence reminds us that we have as yet taken no account of changes in the marginal utility of money, or general purchasing power. At one and the same time, a person's material resources being unchanged, the marginal utility of money to him is a fixed quantity, so that the prices he is just willing to pay for two commodities are to one another in the same ratio as the utility of those two commodities.

The marginal utility of money is greater for the poor than the rich.

§ 3. A greater utility will be required to induce him to buy a thing if he is poor than if he is rich. We have seen how the clerk with £100 a year will walk to business in a heavier rain than the clerk with £300 a year.[1] But although the utility, or the benefit, that is measured in the poorer man's mind by twopence is greater than that measured by it in the richer man's mind; yet if the richer man rides a hundred times in the year and the poorer man twenty times, then

of its purpose of soothing and recreating: and one of double length might be of more than double total utility. This case corresponds to the fact, which we shall have to study in connection with the tendency to diminishing return, that the capital and labour already applied to any piece of land may be so inadequate for the development of its full powers, that some further expenditure on it even with the existing arts of agriculture would give a more than proportionate return; and in the fact that an improvement in the arts of agriculture may resist that tendency, we shall find an analogy to the condition just mentioned in the text as implied in the law of diminishing utility.

[1] See I. II. 2.

the utility of the hundredth ride which the richer man is only just induced to take is measured to him by twopence; and the utility of the twentieth ride which the poorer man is only just induced to take is measured to him by twopence. For each of them the marginal utility is measured by twopence; but this marginal utility is greater in the case of the poorer man than in that of the richer.

In other words, the richer a man becomes the less is the marginal utility of money to him; every increase in his resources increases the price which he is willing to pay for any given benefit. And in the same way every diminution of his resources increases the marginal utility of money to him, and diminishes the price that he is willing to pay for any benefit.[1]

A more definite expression for the demand of an individual.

§ 4. To obtain complete knowledge of demand for anything, we should have to ascertain how much of it he would be willing to purchase at each of the prices at which it is likely to be offered; and the circumstance of his demand for, say, tea can be best expressed by a list of the prices which he is willing to pay; that is, by his several demand prices for different amounts of it. (This list may be called his *demand schedule.*)

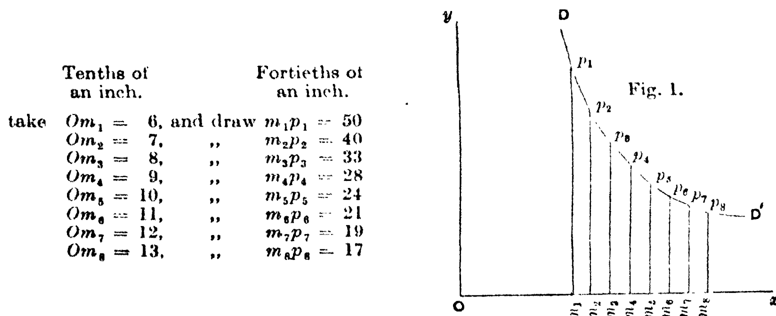
Thus for instance we may find that he would buy

6 lbs.	at	50*d*.	per lb.	10 lbs.	at	24*d*.	per lb.
7	,,	40	,,	11	,,	21	,,
7	,,	33	,,	12	,,	19	,,
9	,,	28	,,	13	,,	17	,,

If corresponding prices were filled in for all intermediate amounts we should have an exact statement of his demand.[2] We

[1] See note II. in the Mathematical Appendix.

[2] Such a demand schedule may be translated, on a plan now coming into familiar use, into a curve that may be called his *demand curve*. Let Ox and Oy be drawn the one horizontally, the other vertically. Let an inch measured along Ox represent 10 lbs. of tea, and an inch measured along Oy represent 40*d*.



	Tenths of an inch.		Fortieths of an inch.
take	$Om_1 = 6$,	and draw	$m_1p_1 = 50$
	$Om_2 = 7$,	,,	$m_2p_2 = 40$
	$Om_3 = 8$,	,,	$m_3p_3 = 33$
	$Om_4 = 9$,	,,	$m_4p_4 = 28$
	$Om_5 = 10$,	,,	$m_5p_5 = 24$
	$Om_6 = 11$,	,,	$m_6p_6 = 21$
	$Om_7 = 12$,	,,	$m_7p_7 = 19$
	$Om_8 = 13$,	,,	$m_8p_8 = 17$

Fig. 1.

III, III, 5.

The meaning of the term increase of demand.

cannot express a person's demand for a thing by the "amount he is willing to buy," or by the "intensity of his eagerness to buy a certain amount," without reference to the prices at which he would buy that amount and other amounts. We can represent it exactly only by lists of the prices at which he is willing to buy different amounts.[1]

When we say that a person's demand for anything increases, we mean that he will buy more of it than he would before at the same price, and that he will buy as much of it as before at a higher price. A general increase in his demand is an increase throughout the whole list of prices at which he is willing to purchase different amounts of it, and not merely that he is willing to buy more of it at the current prices.[2]

Transition to the demand of a group of persons, or market.

§ 5. So far we have looked at the demand of a single individual. And in the particular case of such a thing as tea, the demand of a single person is fairly representative of the general demand of a whole market: for the demand for tea is a constant one; and, since it can be purchased in small quantities, every variation in its price is likely to affect the amount which he will buy. But even among those things which are in constant use, there are many for

---

m_1 being on Ox and m_1p_1 being drawn vertically from m_1; and so for the others. Then $p_1p_2....p_8$ are points on his demand curve for tea; or as we may say *demand points*. If we could find demand points in the same manner for every possible quantity of tea, we should get the whole continuous curve DD' as shown in the figure. This account of the demand schedule and curve is provisional; several difficulties connected with it are deferred to chapter v.

[1] Thus Mill says that we must "mean by the word demand, the quantity demanded, and remember that this is not a fixed quantity, but in general varies according to the value." (*Principles*, III. II. 4.) This account is scientific in substance; but it is not clearly expressed and it has been much misunderstood. Cairnes prefers to represent "demand as the desire for commodities and services, seeking its end by an offer of general purchasing power, and supply as the desire for general purchasing power, seeking its end by an offer of specific commodities or services." He does this in order that he may be able to speak of a ratio, or equality, of demand and supply. But the quantities of two desires on the part of two different persons cannot be compared directly; their measures may be compared, but not they themselves. And in fact Cairnes is himself driven to speak of supply as "limited by the quantity of specific commodities offered for sale, and demand by the quantity of purchasing power offered for their purchase." But sellers have not a fixed quantity of commodities which they offer for sale unconditionally at whatever price they can get: buyers have not a fixed quantity of purchasing power which they are ready to spend on the specific commodities, however much they pay for them. Account must then be taken in either case of the relation between quantity and price, in order to complete Cairnes' account, and when this is done it is brought back to the lines followed by Mill. He says, indeed, that "Demand, as defined by Mill, is to be understood as measured, not, as my definition would require, by the quantity of purchasing power offered in support of the desire for commodities, but by the quantity of commodities for which such purchasing power is offered." It is true that there is a great difference between the statements, "I will buy twelve eggs," and "I will buy a shilling's worth of eggs." But there is no substantive difference between the statement, "I will buy twelve eggs at a penny each, but only six at three-halfpence each," and the statement, "I will spend a shilling on eggs at a penny each, but if they cost three-halfpence each I will spend ninepence on them." But while Cairnes' account when completed becomes substantially the same as Mill's, its present form is even more misleading. (See an article by the present writer on *Mill's Theory of Value* in the *Fortnightly Review* for April, 1876.)

[2] We may sometimes find it convenient to speak of this as *a raising of his demand schedule*. Geometrically it is represented by raising his demand curve, or, what comes to the same thing, moving it to the right, with perhaps some modification of its shape.

which the demand on the part of any single individual cannot vary continuously with every small change in price, but can move only by great leaps. For instance, a small fall in the price of hats or watches will not affect the action of every one; but it will induce a few persons, who were in doubt whether or not to get a new hat or a new watch, to decide in favour of doing so. III, III, 5.

The demand on the part of any individual for some things is discontinuous.

There are many classes of things the need for which on the part of any individual is inconstant, fitful, and irregular. There can be no list of individual demand prices for wedding-cakes, or the services of an expert surgeon. But the economist has little concern with particular incidents in the lives of individuals. He studies rather "the course of action that may be expected under certain conditions from the members of an industrial group," in so far as the motives of that action are measurable by a money price; and in these broad results the variety and the fickleness of individual action are merged in the comparatively regular aggregate of the action of many.

But the aggregate demand of many persons shows a fall of demand price for every increase in quantity.

In large markets, then—where rich and poor, old and young, men and women, persons of all varieties of tastes, temperaments and occupations are mingled together,—the peculiarities in the wants of individuals will compensate one another in a comparatively regular gradation of total demand. Every fall, however slight in the price of a commodity in general use, will, other things being equal, increase the total sales of it; just as an unhealthy autumn increases the mortality of a large town, though many persons are uninjured by it. And therefore if we had the requisite knowledge, we could make a list of prices at which each amount of it could find purchasers in a given place during, say, a year.

The total demand in the place for, say, tea, is the sum of the demands of all the individuals there. Some will be richer and some poorer than the individual consumer whose demand we have just written down; some will have a greater and others a smaller liking for tea than he has. Let us suppose that there are in the place a million purchasers of tea, and that their average consumption is equal to his at each several price. Then the demand of that place is represented by the same list of prices as before, if we write a million pounds of tea instead of one pound.[1]

[1] The demand is represented by the same curve as before, only an inch measured along Ox now represents ten million pounds instead of ten pounds. And a formal definition of the demand curve for a market may be given thus:—The demand curve for any commodity in a market during any given unit of time is the locus of demand points for it. That is to say, it is a curve such that if from any point P on it, a straight line PM be drawn perpendicular to Ox, PM represents the price at which purchasers will be forthcoming for an amount of the commodity represented by OM.

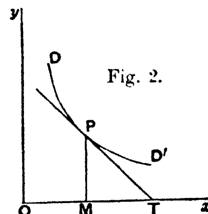


Fig. 2.

III, III, 6.

The law of demand.

There is then one general *law of demand*:—The greater the amount to be sold, the smaller must be the price at which it is offered in order that it may find purchasers; or, in other words, the amount demanded increases with a fall in price, and diminishes with a rise in price. There will not be any uniform relation between the fall in price and the increase of demand. A fall of one-tenth in the price may increase the sales by a twentieth or by a quarter, or it may double them. But as the numbers in the left-hand column of the demand schedule increase, those in the right-hand column will always diminish.[1]

The price will measure the marginal utility of the commodity to each purchaser individually: we cannot speak of price as measuring marginal utility in general, because the wants and circumstances of different people are different.

The influence on demand of the growth of a rival commodity.

§ 6. The demand prices in our list are those at which various quantities of a thing can be sold in a market *during a given time and under given conditions*. If the conditions vary in any respect the prices will probably require to be changed; and this has constantly to be done when the desire for anything is materially altered by a variation of custom, or by a cheapening of the supply of a rival commodity, or by the invention of a new one. For instance, the list of demand prices for tea is drawn out on the assumption that the price of coffee is known; but a failure of the coffee harvest would raise the prices for tea. The demand for gas is liable to be reduced by an improvement in electric lighting; and in the same way a fall in the price of a particular kind of tea may cause it to be substituted for an inferior but cheaper variety.[2]

[1] That is, if a point moves along the curve away from Oy it will constantly approach Ox. Therefore if a straight line PT be drawn touching the curve at P and meeting Ox in T, the angle PTx is an obtuse angle. It will be found convenient to have a short way of expressing this fact; which may be done by saying that PT is *inclined negatively*. Thus the one universal rule to which the demand curve conforms is that it is *inclined negatively* throughout the whole of its length.

It will of course be understood that "the law of demand" does not apply to the demand in a campaign between groups of speculators. A group, which desires to unload a great quantity of a thing on to the market, often begins by buying some of it openly. When it has thus raised the price of the thing, it arranges to sell a great deal quietly, and through unaccustomed channels. See an article by Professor Taussig in the *Quarterly Journal of Economics* (May, 1921, p. 402).

[2] It is even conceivable, though not probable, that a simultaneous and proportionate fall in the price of all teas may diminish the demand for some particular kind of it; if it happens that those whom the increased cheapness of tea leads to substitute a superior kind for it are more numerous than those who are led to take it in the place of an inferior kind. The question where the lines of division between different commodities should be drawn must be settled by convenience of the particular discussion. For some purposes it may be best to regard Chinese and Indian teas, or even Souchong and Pekoe teas, as different commodities; and to have a separate demand schedule for each of them. While for other purposes it may be best to group together commodities as distinct as beef and mutton, or even as tea and coffee, and to have a single list to represent the demand for the two combined; but in such a case of

Our next step will be to consider the general character of demand in the cases of some important commodities ready for immediate consumption. We shall thus be continuing the inquiry made in the preceding chapter as to the variety and satiability of wants; but we shall be treating it from a rather different point of view, viz. that of price-statistics.[1]

III, III, 6.

Relation of the following to the preceding chapter.

course some convention must be made as to the number of ounces of tea which are taken as equivalent to a pound of coffee.

Again, a commodity may be simultaneously demanded for several uses (for instance there may be a "composite demand" for leather for making shoes and portmanteaus); the demand for a thing may be conditional on there being a supply of some other thing without which it would not be of much service (thus there may be a "joint demand" for raw cotton and cotton-spinners' labour). Again, the demand for a commodity on the part of dealers who buy it only with the purpose of selling it again, though governed by the demand of the ultimate consumers in the background, has some peculiarities of its own. But all such points may best be discussed at a later stage.

[1] A great change in the manner of economic thought has been brought about during the present generation by the general adoption of semi-mathematical language for expressing the relation between small increments of a commodity on the one hand, and on the other hand small increments in the aggregate price that will be paid for it: and by formally describing these small increments of price as measuring corresponding small increments of pleasure. The former, and by far the more important, step was taken by Cournot (*Recherches sur les Principes Mathématiques de la Théorie des Richesses*, 1838); the latter by Dupuit (*De la Mesure d'utilité des travaux publics* in the *Annales des Ponts et Chaussées*, 1844), and by Gossen (*Entwickelung der Gesetze des menschlichen Verkehrs*, 1854). But their work was forgotten; part of it was done over again, developed and published almost simultaneously by Jevons and by Carl Menger in 1871, and by Walras a little later. Jevons almost at once arrested public attention by his brilliant lucidity and interesting style. He applied the new name *final utility* so ingeniously as to enable people who knew nothing of mathematical science to get clear ideas of the general relations between the small increments of two things that are gradually changing in causal connection with one another. His success was aided even by his faults. For under the honest belief that Ricardo and his followers had rendered their account of the causes that determine value hopelessly wrong by omitting to lay stress on the law of satiable wants, he led many to think he was correcting great errors; whereas he was really only adding very important explanations. He did excellent work in insisting on a fact which is none the less important, because his predecessors, and even Cournot, thought it too obvious to be explicitly mentioned, viz. that the diminution in the amount of a thing demanded in a market indicates a diminution in the intensity of the desire for it on the part of individual consumers, whose wants are becoming satiated. But he has led many of his readers into a confusion between the provinces of Hedonics and Economics, by exaggerating the applications of his favourite phrases, and speaking (*Theory*, *2nd* Edn. p. 105) without qualification of the price of a thing as measuring its final utility not only to an individual, which it can do, but also to "a trading body," which it cannot do. These points are developed later on in Appendix I. on Ricardo's Theory of value. It should be added that Prof. Seligman has shown (*Economic Journal*, 1903, pp. 356-363) that a long-forgotten Lecture, delivered by Prof. W. F. Lloyd at Oxford in 1833, anticipated many of the central ideas of the present doctrine of utility.

An excellent bibliography of Mathematical Economics is given by Prof. Fisher as an appendix to Bacon's translation of Cournot's *Researches*, to which the reader may be referred for a more detailed account of the earlier mathematical writings on economics, as well as of those by Edgeworth, Pareto, Wicksteed, Auspitz, Lieben and others. Pantaleoni's *Pure Economics*, amid much excellent matter, makes generally accessible for the first time the profoundly original and vigorous, if somewhat abstract, reasonings of Gossen.

CHAPTER IV

THE ELASTICITY OF WANTS

Definition of elasticity of demand.

§ 1. We have seen that the only universal law as to a person's desire for a commodity is that it diminishes, other things being equal, with every increase in his supply of that commodity. But this diminution may be slow or rapid. If it is slow the price that he will give for the commodity will not fall much in consequence of a considerable increase in his supply of it; and a small fall in price will cause a comparatively large increase in his purchases. But if it is rapid, a small fall in price will cause only a very small increase in his purchases. In the former case his willingness to purchase the thing stretches itself out a great deal under the action of a small inducement: the elasticity of his wants, we may say, is great. In the latter case the extra inducement given by the fall in price causes hardly any extension of his desire to purchase: the elasticity of his demand is small. If a fall in price from say 16*d.* to 15*d.* per lb. of tea would much increase his purchases, then a rise in price from 15*d.* to 16*d.* would much diminish them. That is, when the demand is elastic for a fall in price, it is elastic also for a rise.

And as with the demand of one person so with that of a whole market. And we may say generally:—The *elasticity* (or *responsiveness*) *of demand* in a market is great or small according as the amount demanded increases much or little for a given fall in price, and diminishes much or little for a given rise in price.[1]

[1] We may say that the elasticity of demand is one, if a small fall in price will cause an equal proportionate increase in the amount demanded: or as we may say roughly, if a fall of one per cent. in price will increase the sales by one per cent.; that it is two or a half, if a fall of one per cent. in price makes an increase of two or one half per cent. respectively in the amount demanded; and so on. (This statement is rough; because 98 does not bear exactly the same proportion to 100 that 100 does to 102.) The elasticity of demand can be best traced in the demand curve with the aid of the following rule. Let a straight line touching the curve at any point P meet Ox in T and Oy in t, then *the measure of elasticity at the point P is the ratio of PT to Pt.*

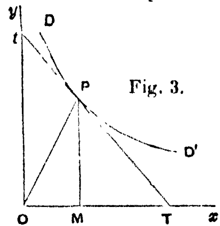


Fig. 3.

If PT were twice Pt, a fall of 1 per cent. in price would cause an increase of 2 per cent., in the amount demanded; the elasticity of demand would be two. If PT were one-third of Pt, a fall of 1 per cent. in price would cause an increase of ⅓ per cent. in the amount demanded; the elasticity of demand would be one-third; and so on. Another way of looking at the same result is this:—the elasticity at the point P is measured by the ratio of PT to Pt, that is of MT to MO (PM being drawn perpen-

III, IV, 2, 3.

The general law of variation of the elasticity of demand, *and its consequent responsiveness to changes of price.*

§ 2. The price which is so high relatively to the poor man as to be almost prohibitive, may be scarcely felt by the rich; the poor man, for instance, never tastes wine, but the very rich man may drink as much of it as he has a fancy for, without giving himself a thought of its cost. We shall therefore get the clearest notion of the law of the elasticity of demand by considering one class of society at a time. Of course there are many degrees of richness among the rich, and of poverty among the poor; but for the present we may neglect these minor subdivisions.

When the price of a thing is very high relatively to any class, they will buy but little of it; and in some cases custom and habit may prevent them from using it freely even after its price has fallen a good deal. It may still remain set apart for a limited number of special occasions, or for use in extreme illness, etc. But such cases, though not infrequent, do not form the general rule; and anyhow as soon as it has been taken into common use, any considerable fall in its price causes a great increase in the demand for it. The elasticity of demand is great for high prices, and great, or at least considerable, for medium prices; but it declines as the price falls; and gradually fades away if the fall goes so far that satiety level is reached.

This rule appears to hold with regard to nearly all commodities and with regard to the demand of every class; save only that the level at which high prices end and low prices begin, is different for different classes; and so again is the level at which low prices end and very low prices begin. There are however many varieties in detail; arising chiefly from the fact that there are some commodities with which people are easily satiated, and others—chiefly things used for display—for which their desire is almost unlimited. For the latter the elasticity of demand remains considerable, however low the price may fall, while for the former the demand loses nearly all its elasticity as soon as a low price has once been reached.[1]

Illustrations drawn from the demand for particular commodities.

§ 3. There are some things the current prices of which in this country are very low relatively even to the poorer classes; such are for instance salt, and many kinds of savours and flavours, and also cheap medicines. It is doubtful whether any fall in price would induce a considerable increase in the consumption of these.

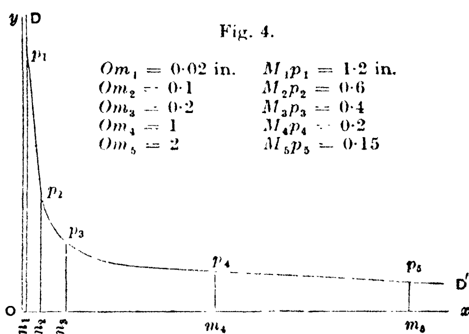
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dicular to *Om*); and therefore *the elasticity is equal to one when the angle TPM is equal to the angle OPM; and it always increases when the angle TPM increases relatively to the angle OPM, and vice versâ.* See Note III. in the Mathematical Appendix.

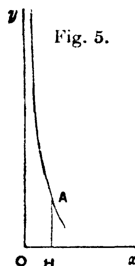
[1] Let us illustrate by the case of the demand for, say, green peas in a town in which all vegetables are bought and sold in one market. Early in the season perhaps

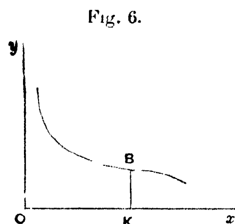
III, iv, 3. The current prices of meat, milk and butter, wool, tobacco, imported fruits, and of ordinary medical attendance, are such that every variation in price makes a great change in the consumption of them by the working classes, and the lower half of the middle classes; but the rich would not much increase their own personal consumption of them however cheaply they were to be had. In other words, the direct demand for these commodities is very elastic on the part of the working and lower middle classes, though not on the part of the rich. But the working class is so numerous that their consumption of such things as are well within their reach is much greater than that of the

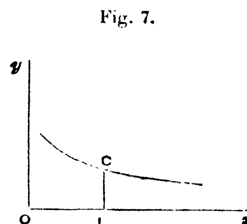
100 lb. a day will be brought to market and sold at 1*s.* per lb., later on 500 lb. will be brought and sold at 6*d.*, later on 1,000 lb. at 4*d.*, later still 5,000 at 2*d.*, and later still 10,000 at 1½*d.* Thus demand is represented in fig. 4, an inch along Ox representing 5,000 lbs. and an inch along Oy representing 10*d.* Then a curve through $p_1 p_2 \dots p_5$, found as shown above, will be the total demand curve. But this total demand will be made up of the demands of the rich, the middle class and the poor. The amounts that they will severally demand may perhaps be represented by the following schedules:—



At price in pence per lb.	Number of lbs. bought by— Rich.	Middle class	Poor.	Total.
12	100	0	0	100
6	300	200	0	500
4	500	400	100	1,000
2	800	2,500	1,700	5,000
1½	1,000	4,000	5,000	10,000







These schedules are translated into curves figs. 5, 6, 7, showing the demands of the rich, the middle class and the poor represented on the same scale as fig. 4. Thus for instance AH, BK and CL each represents a price of 2*d.* and is ·2 inches in length; $OH = {\cdot}16$ in. representing 800 lb., $OK = {\cdot}5$ in. representing 2,500 lb. and $OL = {\cdot}34$ in. representing 1,700 lb., while $OH + OK + OL = 1$ inch, i.e. $= Om_4$ in fig. 4 as they should do. This may serve as an example of the way in which several partial demand curves, drawn to the same scale, can be superimposed horizontally on one another to make the total demand curve representing the aggregate of the partial demand.

III, IV, 4.

rich; and therefore the aggregate demand for all things of the kind is very elastic. A little while ago sugar belonged to this group of commodities: but its price in England has now fallen so far as to be low relatively even to the working classes, and the demand for it is therefore not elastic.[1]

The current prices of wall-fruit, of the better kinds of fish, and other moderately expensive luxuries are such as to make the consumption of them by the middle class increase much with every fall in price; in other words, the middle class demand for them is very elastic: while the demand on the part of the rich and on the part of the working class is much less elastic, the former because it is already nearly satiated, the latter because the price is still too high.

The current prices of such things as rare wines, fruit out of season, highly skilled medical and legal assistance, are so high that there is but little demand for them except from the rich: but what demand there is, often has considerable elasticity. Part of the demand for the more expensive kinds of food is really a demand for the means of obtaining social distinction, and is almost insatiable.[2]

The demand for necessaries.

§ 4. The case of necessaries is exceptional. When the price of wheat is very high, and again when it is very low, the demand has very little elasticity: at all events if we assume that wheat, even when scarce, is the cheapest food for man; and that, even when most plentiful, it is not consumed in any other way. We know that a fall in the price of the quartern loaf from 6*d.* to 4*d.* has scarcely any effect in increasing the consumption of bread. With regard to the other end of the scale it is more difficult to speak with certainty, because there has been no approach to a scarcity in England since the repeal of the corn laws. But, availing ourselves of the experience of a less happy time, we may suppose that deficits in the supply of 1, 2, 3, 4, or 5 tenths would cause a rise in price of 3, 8, 16, 28, or 45 tenths

[1] We must however remember that the character of the demand schedule for any commodity depends in a great measure on whether the prices of its rivals are taken to be fixed or to alter with it. If we separated the demand for beef from that for mutton, and supposed the price of mutton to be held fixed while that for beef was raised, then the demand for beef would become extremely elastic. For any slight fall in the price of beef would cause it to be used largely in the place of mutton and thus lead to a very great increase of its consumption: while on the other hand even a small rise in price would cause many people to eat mutton to the almost entire exclusion of beef. But the demand schedule for all kinds of fresh meat taken together, their prices being supposed to retain always about the same relation to one another, and to be not very different from those now prevailing in England, shows only a moderate elasticity. And similar remarks apply to beet-root and cane-sugar. Compare the note on p. 84.

[2] See above ch. II. § 1. In April 1894, for instance, six plovers' eggs, the first of the season, were sold in London at 10*s.* 6*d.* each. The following day there were more, and the price fell to 5*s.*; the next day to 3*s.* each, and a week later to 4*d.*

III, IV, 4. respectively.[1] Much greater variations in prices indeed than this have not been uncommon. Thus wheat sold in London for ten shillings a bushel in 1335, but in the following year it sold for tenpence.[2]

Commodities some part of the consumption of which is necessary.

There may be even more violent changes than this in the price of a thing which is not necessary, if it is perishable and the demand for it is inelastic: thus fish may be very dear one day, and sold for manure two or three days later.

Water is one of the few things the consumption of which we are able to observe at all prices, from the very highest down to nothing at all. At moderate prices the demand for it is very elastic. But the uses to which it can be put are capable of being completely filled: and as its price sinks towards zero the demand for it loses its elasticity. Nearly the same may be said of salt. Its price in England is so low that the demand for it as an article of food is very inelastic: but in India the price is comparatively high and the demand is comparatively elastic.

The price of house room, on the other hand, has never fallen very low except when a locality is being deserted by its inhabitants. Where the condition of society is healthy, and there is no check to general prosperity, there seems always to be an elastic demand for house room, on account both of the real conveniences and the social distinction which it affords. The desire for those kinds of clothing which are not used for the purpose of display, is satiable: when their price is low the demand for them has scarcely any elasticity.

Influence of sensibility and acquired tastes and distastes.

The demand for things of a higher quality depends much on sensibility: some people care little for a refined flavour in their wine provided they can get plenty of it: others crave a high quality, but are easily satiated. In the ordinary working class districts the inferior and the better joints are sold at nearly the same price: but

[1] This estimate is commonly attributed to Gregory King. Its bearing on the law of demand is admirably discussed by Lord Lauderdale (*Inquiry*, pp. 51–3). It is represented in fig. 8 by the curve DD', the point A corresponding to the ordinary price. If we take account of the fact that where the price of wheat is very low, it may be used, as it was for instance in 1834, for feeding cattle and sheep and pigs and for brewing and distilling, the lower part of the curve would take a shape somewhat like that of the dotted line in the figure. And if we assume that when the price is very high, cheaper substitutes can be got for it, the upper part of the curve would take a shape similar to that of the upper dotted line.

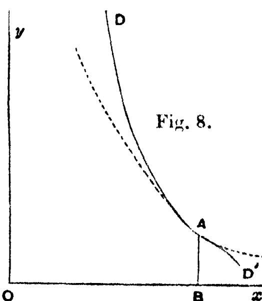


Fig. 8.

[2] *Chronicon Preciosum* (A.D. 1745) says that the price of wheat in London was as low as 2*s*. a quarter in 1336: and that at Leicester it sold at 40*s*. on a Saturday and at 14*s*. on the following Friday.

some well-paid artisans in the north of England have developed a liking for the best meat, and will pay for it nearly as high a price as can be got in the west end of London, where the price is kept artificially high by the necessity of sending the inferior joints away for sale elsewhere. Use also gives rise to acquired distastes as well as to acquired tastes. Illustrations which make a book attractive to many readers, will repel those whose familiarity with better work has rendered them fastidious. A person of high musical sensibility in a large town will avoid bad concerts: though he might go to them gladly if he lived in a small town, where no good concerts are to be heard, because there are not enough persons willing to pay the high price required to cover their expenses. The effective demand for first-rate music is elastic only in large towns; for second-rate music it is elastic both in large and small towns.

Influence of variety of uses.

Generally speaking those things have the most elastic demand, which are capable of being applied to many different uses. Water for instance is needed first as food, then for cooking, then for washing of various kinds and so on. When there is no special drought, but water is sold by the pailful, the price may be low enough to enable even the poorer classes to drink as much of it as they are inclined, while for cooking they sometimes use the same water twice over, and they apply it very scantily in washing. The middle classes will perhaps not use any of it twice for cooking; but they will make a pail of water go a good deal further for washing purposes than if they had an unlimited supply at command. When water is supplied by pipes, and charged at a very low rate by meter, many people use as much of it even for washing as they feel at all inclined to do; and when the water is supplied not by meter but at a fixed annual charge, and is laid on in every place where it is wanted, the use of it for every purpose is carried to the full satiety limit.[1]

Inelastic demand.

On the other hand, demand is, generally speaking, very inelastic, firstly, for absolute necessaries (as distinguished from conventional necessaries and necessaries for efficiency); and secondly, for some

[1] Thus the general demand of any one person for such a thing as water is the aggregate (or *compound*, see V. vi. 3) of his demand for it for each use; in the same way as the demand of a group of people of different orders of wealth for a commodity, which is serviceable in only one use, is the aggregate of the demands of each member of the group. Again, just as the demand of the rich for peas is considerable even at a very high price, but loses all elasticity at a price that is still high relatively to the consumption of the poor; so the demand of the individual for water to drink is considerable even at a very high price, but loses all elasticity at a price that is still high relatively to his demand for it for the purpose of cleaning up the house. And as the aggregate of a number of demands on the part of different classes of people for peas retains elasticity over a larger range of price than will that of any one individual, so the demand of an individual for water for many uses retains elasticity over a larger range of prices than his demand for it for any one use. Compare an article by J. B. Clark on *A Universal Law of Economic Variation* in the *Harvard Journal of Economics* Vol. VIII.

III, IV, 5, 6.

of those luxuries of the rich which do not absorb much of their income.

Difficulties of the statistical study; The element of Time.

§ 5. So far we have taken no account of the difficulties of getting exact lists of demand prices, and interpreting them correctly. The first which we have to consider arises from the element of *time*, the source of many of the greatest difficulties in economics.

Thus while a list of demand prices represents the changes in the price at which a commodity can be sold consequent on changes in the amount offered for sale, *other things being equal*; yet other things seldom are equal in fact over periods of time sufficiently long for the collection of full and trustworthy statistics. There are always occurring disturbing causes whose effects are commingled with, and cannot easily be separated from, the effects of that particular cause which we desire to isolate. This difficulty is aggravated by the fact that in economics the full effects of a cause seldom come at once, but often spread themselves out after it has ceased to exist.

Changes in the purchasing power of money,

To begin with, the purchasing power of money is continually changing, and rendering necessary a correction of the results obtained on our assumption that money retains a uniform value. This difficulty can however be overcome fairly well, since we can ascertain with tolerable accuracy the broader changes in the purchasing power of money.

whether permanent, or temporary.

Next come the changes in the general prosperity and in the total purchasing power at the disposal of the community at large. The influence of these changes is important, but perhaps less so than is generally supposed. For when the wave of prosperity is descending, prices fall, and this increases the resources of those with fixed incomes at the expense of those whose incomes depend on the profits of business. The downward fluctuation of prosperity is popularly measured almost entirely by the conspicuous losses of this last class; but the statistics of the total consumption of such commodities as tea, sugar, butter, wool, etc. prove that the total purchasing power of the people does not meanwhile fall very fast. Still there is a fall, and the allowance to be made for it must be ascertained by comparing the prices and the consumption of as many things as possible.

Next come the changes due to the gradual growth of population and wealth. For these an easy numerical correction can be made when the facts are known.[1]

§ 6. Next, allowance must be made for changes in fashion, and

[1] When a statistical table shows the gradual growth of the consumption of a commodity over a long series of years, we may want to compare the percentage by which it increases in different years. This can be done pretty easily with a little practice. But when the figures are expressed in the form of a statistical diagram, it cannot easily be done, without translating the diagram back into figures; and this

III, IV, 6.

Gradual changes in habits and in the familiarity with new things and new ways of using them.

taste and habit,[1] for the opening out of new uses of a commodity, for the discovery or improvement or cheapening of other things that can be applied to the same uses with it. In all these cases there is great difficulty in allowing for the time that elapses between the economic cause and its effect. For time is required to enable a rise in the price of a commodity to exert its full influence on consumption. Time is required for consumers to become familiar with substitutes that can be used instead of it, and perhaps for producers to get into the habit of producing them in sufficient quantities. Time may be also wanted for the growth of habits of familiarity with the new commodities and the discovery of methods of economizing them.

Illustrations.

For instance when wood and charcoal became dear in England, familiarity with coal as a fuel grew slowly, fireplaces were but slowly adapted to its use, and an organized traffic in it did not spring up quickly even to places to which it could be easily carried by water: the invention of processes by which it could be used as a substitute for charcoal in manufacture went even more slowly, and is indeed hardly yet complete. Again, when in recent years the price of coal became very high, a great stimulus was given to the invention of economies in its use, especially in the production of iron and steam; but few of these inventions bore much practical fruit till after the high price had passed away. Again, when a new tramway or suburban railway is opened, even those who live near the line do not get into the habit of making the most of its assistance at once; and a good deal more time elapses before many of those whose places of business are near one end of the line change their homes so as to live near the other end. Again, when petroleum first became plentiful few people were ready to use it freely; gradually petroleum and petroleum lamps have become familiar to all classes of society: too much influence

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is a cause of the disfavour in which many statisticians hold the graphic method. But by the knowledge of one simple rule the balance can be turned, so far as this point goes, in favour of the graphic method. The rule is as follows:—Let the quantity of a commodity consumed (or of trade carried, or of tax levied etc.) be measured by horizontal lines parallel to Ox, fig. 9, while the corresponding years are in the usual manner ticked off in descending order at equal distances along Oy. To measure the rate of growth at any point P, put a ruler to touch the curve at P. Let it meet Oy in t, and let N be the point on Oy at the same vertical height as P; then the number of years marked off along Oy by the distance Nt is the inverse of the fraction by which the amount is increasing annually.

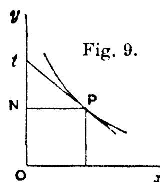


Fig. 9.

That is, if Nt is 20 years, the amount is increasing at the rate of $\frac{1}{20}$, *i.e.* of 5 per cent. annually; if Nt is 25 years, the increase is $\frac{1}{25}$ or 4 per cent. annually; and so on. See a paper by the present writer in the Jubilee number of the *Journal of the London Statistical Society*, June 1885; also Note IV. in the Mathematical Appendix.

[1] For illustrations of the influence of fashion see articles by Miss Foley in the *Economic Journal*, Vol. III., and Miss Heather Bigg in the *Nineteenth Century*, Vol. XXIII.

III, IV, 7. would therefore be attributed to the fall in price which has occurred since then, if it were credited with all the increase of consumption.

Some demands can be more easily postponed than others.

Another difficulty of the same kind arises from the fact that there are many purchases which can easily be put off for a short time, but not for a long time. This is often the case with regard to clothes and other things which are worn out gradually, and which can be made to serve a little longer than usual under the pressure of high prices. For instance, at the beginning of the cotton famine the recorded consumption of cotton in England was very small. This was partly because retail dealers reduced their stock, but chiefly because people generally made shift to do as long as they could without buying new cotton goods. In 1864 however many found themselves unable to wait longer; and a good deal more cotton was entered for home consumption in that year, though the price was then much higher than in either of the preceding years. For commodities of this kind then a sudden scarcity does not immediately raise the price fully up to the level, which properly corresponds to the reduced supply. Similarly after the great commercial depression in the United States in 1873 it was noticed that the boot trade revived before the general clothing trade; because there is a great deal of reserve wear in the coats and hats that are thrown aside in prosperous times as worn out, but not so much in the boots.

Imperfections of statistics.

§ 7. The above difficulties are fundamental: but there are others which do not lie deeper than the more or less inevitable faults of our statistical returns.

We desire to obtain, if possible, a series of prices at which different amounts of a commodity can find purchasers during a given time in a market. A perfect market is a district, small or large, in which there are many buyers and many sellers all so keenly on the alert and so well acquainted with one another's affairs that the price of a commodity is always practically the same for the whole of the district. But independently of the fact that those who buy for their own consumption, and not for the purposes of trade, are not always on the look out for every change in the market, there is no means of ascertaining exactly what prices are paid in many transactions. Again, the geographical limits of a market are seldom clearly drawn, except when they are marked out by the sea or by custom-house barriers; and no country has accurate statistics of commodities produced in it for home consumption.

Increase of dealers' stocks mistaken

Again, there is generally some ambiguity even in such statistics as are to be had. They commonly show goods as entered for consumption as soon as they pass into the hands of dealers; and conse-

quently an increase of dealers' stocks cannot easily be distinguished from an increase of consumption. But the two are governed by different causes. A rise of prices tends to check consumption; but if the rise is expected to continue, it will probably, as has already been noticed, lead dealers to increase their stocks.[1]

III, iv, 8. for increase of consumption.

Next it is difficult to insure that the commodities referred to are always of the same quality. After a dry summer what wheat there is, is exceptionally good; and the prices for the next harvest year appear to be higher than they really are. It is possible to make allowance for this, particularly now that dry Californian wheat affords a standard. But it is almost impossible to allow properly for the changes in quality of many kinds of manufactured goods. This difficulty occurs even in the case of such a thing as tea: the substitution in recent years of the stronger Indian tea for the weaker Chinese tea has made the real increase of consumption greater than that which is shown by the statistics.

Changes of quality.

Note on Statistics of Consumption.

§ 8. General Statistics of consumption are published by many Governments with regard to certain classes of commodities. But partly for the reasons just indicated they are of very little service in helping us to trace either a causal connection between variations in prices and variations in the amounts which people will buy, or in the distribution of different kinds of consumption among the different classes of the community.

Inductive study of laws of demand is difficult; but traders could further it much by analysing their own accounts.

As regards the first of these objects, viz. the discovery of the laws connecting variations in consumption consequent on variations in price, there seems much to be gained by working out a hint given by Jevons (*Theory*, pp. 11, 12) with regard to shopkeepers' books. A shopkeeper, or the manager of a co-operative store, in the working man's quarter of a manufacturing town has often the means of ascertaining with tolerable accuracy the financial position of the great body of his customers. He can find out how many factories are at work, and for how many hours in the week, and he can hear about all the important changes in the rate of wages: in fact he makes it his business to do so. And as a rule his customers are quick in finding out changes in the price of things which they commonly use. He will therefore often find cases in which an increased consumption of a commodity is brought about by a fall in its price, the cause acting quickly, and acting alone without any admixture of disturbing causes. Even where disturbing causes are present, he will

[1] In examining the effects of taxation, it is customary to compare the amounts entered for consumption just before and just after the imposition of the tax. But this is untrustworthy. For dealers anticipating the tax lay in large stocks just before it is imposed, and need to buy very little for some time afterwards. And *vice versâ* when a tax is lowered. Again, high taxes lead to false returns. For instance, the nominal importation of molasses into Boston increased fiftyfold in consequence of the tax being lowered by the Rockingham Ministry in 1766, from 6*d*. to 1*d*. per gallon. But this was chiefly due to the fact that with the tax at 1*d*., it was cheaper to pay the duty than to smuggle.

III, IV, 8. often be able to allow for their influence. For instance, he will know that as the winter comes on, the prices of butter and vegetables rise; but the cold weather makes people desire butter more and vegetables less than before: and therefore when the prices of both vegetables and butter rise towards the winter, he will expect a greater falling off of consumption in the case of vegetables than should properly be attributed to the rise in price taken alone, but a less falling off in the case of butter. If however in two neighbouring winters his customers have been about equally numerous, and in receipt of about the same rate of wages; and if in the one the price of butter was a good deal higher than in the other, then a comparison of his books for the two winters will afford a very accurate indication of the influence of changes in price on consumption. Shopkeepers who supply other classes of society must occasionally be in a position to furnish similar facts relating to the consumption of their customers.

Consumption by the poor of cheap things may suggest the probable variations in its consumption by the rich if it became very dear.

If a sufficient number of tables of demand by different sections of society could be obtained, they would afford the means of estimating indirectly the variations in total demand that would result from extreme variations in price, and thus attaining an end which is inaccessible by any other route. For, as a general rule, the price of a commodity fluctuates within but narrow limits; and therefore statistics afford us no direct means of guessing what the consumption of it would be, if its price were either fivefold or a fifth part of what it actually is. But we know that its consumption would be confined almost entirely to the rich if its price were very high; and that, if its price were very low, the great body of its consumption would in most cases be among the working classes. If then the present price is very high relatively to the middle or to the working classes, we may be able to infer from the laws of their demand at the present prices what would be the demand of the rich if the price were so raised so as to be very high relatively even to their means. On the other hand, if the present price is moderate relatively to the means of the rich, we may be able to infer from their demand what would be the demand of the working classes if the price were to fall to a level which is moderate relatively to their means. It is only by thus piecing together fragmentary laws of demand that we can hope to get any approach to an accurate law relating to widely different prices. (That is to say, the general demand curve for a commodity cannot be drawn with confidence except in the immediate neighbourhood of the current price, until we are able to piece it together out of the fragmentary demand curves of different classes of society. Compare the Second Section of this Chapter.)

When some progress has been made in reducing to definite law the demand for commodities that are destined for immediate consumption, then, but not till then, will there be use in attempting a similar task with regard to those secondary demands which are dependent on these—the demands namely for the labour of artisans and others who take part in the production of things for sale; and again the demand for machines, factories, railway material and other instruments of production. The demand for the work of medical men, of domestic servants and of all those whose services are rendered direct to the consumer is similar in character to the demand for commodities for immediate consumption, and its laws may be investigated in the same manner.

Another method is to collect budgets of individuals in different classes.

It is a very important, but also difficult task to ascertain the proportions in which the different classes of society distribute their expenditure between necessaries, comforts and luxuries; between things that provide only present pleasure, and those that build up stores of physical and moral strength; and lastly between those which gratify the lower wants and those which stimulate and educate the higher wants. Several endeavours have been made in this direction on the Continent during the last fifty years; and latterly the

subject has been investigated with increasing vigour not only there but also III, iv, 8.
in America and in England.[1]

[1] A single table made out by the great statistician Engel for the consumption of the lower, middle and working classes in Saxony in 1857, may be quoted here; because it has acted as a guide and a standard of comparison to later inquiries. It is as follows:—

Items of expenditure.	Proportions of the expenditure of the family of—		
	1 Workman with an income of £45 to £60 a year.	2 Workman with an income of £90 to £120 a year.	3 Middle-class person with an income of £150 to £200 a year.
1. Food only . . .	62·0 per cent.	55·0 per cent.	50·0 per cent.
2. Clothing . . .	16·0 ,,	18·0 ,,	18·0 ,,
3. Lodging . .	12·0 ,,	12·0 ,,	12·0 ,,
4. Light and fuel . .	5·0 ,,	5·0 ,,	5·0 ,,
5 Education . . .	2·0 ,,	3·5 ,,	5·5 ,,
6. Legal protection . .	1·0 ,,	2·0 ,,	3·0 ,,
7. Care of health .	1·0 ,,	2·0 ,,	3·0 ,,
8. Comfort and recreation .	1·0 ,,	2·5 ,,	3·5 ,,
Total . . .	100·0 per cent.	100·0 per cent.	100·0 per cent.

Working-men's budgets have often been collected and compared. But like all other figures of the kind they suffer from the facts that those who will take the trouble to make such returns voluntarily are not average men, that those who keep careful accounts are not average men; and that when accounts have to be supplemented by the memory, the memory is apt to be biassed by notions as to how the money ought to have been spent, especially when the accounts are put together specially for another's eye. This border ground between the provinces of domestic and public economy is one in which excellent work may be done by many who are disinclined for more general and abstract speculations

Information bearing on the subject was collected long ago by Harrison, Petty, Cantillon (whose lost Supplement seems to have contained some workmen's budgets), Arthur Young, Malthus and others. Working-men's budgets were collected by Eden at the end of the last century; and there is much miscellaneous information on the expenditure of the working classes in subsequent Reports of Commissions on Poor-relief, Factories, etc. Indeed almost every year sees some important addition from public or private sources to our information on these subjects.

It may be noted that the method of le Play's monumental *Les Ouvriers Européens* is the *intensive* study of all the details of the domestic life of a few carefully chosen families. To work it well requires a rare combination of judgment in selecting cases, and of insight and sympathy in interpreting them. At its best, it is the best of all: but in ordinary hands it is likely to suggest more untrustworthy general conclusions, than those obtained by the *extensive* method of collecting more rapidly very numerous observations, reducing them as far as possible to statistical form, and obtaining broad averages in which inaccuracies and idiosyncrasies may be trusted to counteract one another to some extent.

CHAPTER V

CHOICE BETWEEN DIFFERENT USES OF THE SAME THING. IMMEDIATE AND DEFERRED USES

III, v, 1.

The distribution of a person's means between the gratification of different wants.

§ 1. THE primitive housewife finding that she has a limited number of hanks of yarn from the year's shearing, considers all the domestic wants for clothing and tries to distribute the yarn between them in such a way as to contribute as much as possible to the family wellbeing. She will think she has failed if, when it is done, she has reason to regret that she did not apply more to making, say, socks, and less to vests. That would mean that she had miscalculated the points at which to suspend the making of socks and vests respectively; that she had gone too far in the case of vests, and not far enough in that of socks; and that therefore at the points at which she actually did stop, the utility of yarn turned into socks was greater than that of yarn turned into vests. But if, on the other hand, she hit on the right points to stop at, then she made just so many socks and vests that she got an equal amount of good out of the last bundle of yarn that she applied to socks, and the last she applied to vests. This illustrates a general principle, which may be expressed thus :—

If a person has a thing which he can put to several uses, he will distribute it among these uses in such a way that it has the same marginal utility in all. For if it had a greater marginal utility in one use than another, he would gain by taking away some of it from the second use and applying it to the first.[1]

But a person may have too much of one thing for all uses, and too little of another.

One great disadvantage of a primitive economy, in which there is but little free exchange, is that a person may easily have so much of one thing, say wool, that when he has applied it to every possible use, its marginal utility in each use is low : and at the same time he may have so little of some other thing, say wood, that its marginal utility for him is very high. Meanwhile some of his neighbours may be in great need of wool, and have more wood than they can turn to good account. If each gives up that which has for him the lower

[1] Our illustration belongs indeed properly to domestic production rather than to domestic consumption. But that was almost inevitable; for there are very few things ready for immediate consumption which are available for many different uses. And the doctrine of the distribution of means between different uses has less important and less interesting applications in the science of demand than in that of supply. See *e.g.* V. III. 3.

utility and receives that which has the higher, each will gain by the exchange. But to make such an adjustment by barter, would be tedious and difficult. III, v, 2.

The difficulty of barter is indeed not so very great where there are but a few simple commodities each capable of being adapted by domestic work to several uses; the weaving wife and the spinster daughters adjusting rightly the marginal utilities of the different uses of the wool, while the husband and the sons do the same for the wood.

Barter is a partial remedy.

§ 2. But when commodities have become very numerous and highly specialized, there is an urgent need for the free use of money, or general purchasing power; for that alone can be applied easily in an unlimited variety of purchases. And in a money-economy, good management is shown by so adjusting the margins of suspense on each line of expenditure that the marginal utility of a shilling's worth of goods on each line shall be the same. And this result each one will attain by constantly watching to see whether there is anything on which he is spending so much that he would gain by taking a little away from that line of expenditure and putting it on some other line.

Money can be distributed so as to have equal marginal utilities in each use.

Thus, for instance, the clerk who is in doubt whether to ride to town, or to walk and have some little extra indulgence at his lunch, is weighing against one another the (marginal) utilities of two different modes of spending his money. And when an experienced housekeeper urges on a young couple the importance of keeping accounts carefully; a chief motive of the advice is that they may avoid spending impulsively a great deal of money on furniture and other things; for, though some quantity of these is really needful, yet when bought lavishly they do not give high (marginal) utilities in proportion to their cost. And when the young pair look over their year's budget at the end of the year, and find perhaps that it is necessary to curtail their expenditure somewhere, they compare the (marginal) utilities of different items, weighing the loss of utility that would result from taking away a pound's expenditure here, with that which they would lose by taking it away there: they strive to adjust their parings down so that the aggregate loss of utility may be a minimum, and the aggregate of utility that remains to them may be a maximum.[1]

Illustrations.

A chief use of domestic accounts.

[1] The working-class budgets which were mentioned in Ch. IV, § 8 may render most important services in helping people to distribute their resources wisely between different uses, so that the marginal utility for each purpose shall be the same. But the vital problems of domestic economy relate as much to wise action as to wise spending. The English and the American housewife make limited means go a less way towards satisfying wants than the French housewife does, not because they do not know how to buy, but because they cannot produce as good finished commodities out of the raw material of inexpensive joints, vegetables etc., as she can. Domestic economy is

III, v, 3.

The balancing of future benefits against present.

§ 3. The different uses between which a commodity is distributed need not all be present uses; some may be present and some future. A prudent person will endeavour to distribute his means between all their several uses, present and future, in such a way that they will have in each the same marginal utility. But in estimating the present marginal utility of a distant source of pleasure a twofold allowance must be made; firstly, for its uncertainty (this is an *objective* property which all well-informed persons would estimate in the same way); and secondly, for the difference in the value to them of a distant as compared with a present pleasure (this is a *subjective* property which different people would estimate in different ways according to their individual characters, and their circumstances at the time).

Future benefits are "discounted," at different rates.

If people regarded future benefits as equally desirable with similar benefits at the present time, they would probably endeavour to distribute their pleasures and other satisfactions evenly throughout their lives. They would therefore generally be willing to give up a present pleasure for the sake of an equal pleasure in the future, provided they could be certain of having it. But in fact human nature is so constituted that in estimating the " present value " of a future benefit most people generally make a second deduction from its future value, in the form of what we may call a " discount," that increases with the period for which the benefit is deferred. One will reckon a distant benefit at nearly the same value which it would have for him if it were present; while another who has less power of realizing the future, less patience and self-control, will care comparatively little for any benefit that is not near at hand. And the same person will vary in his mood, being at one time impatient, and greedy for present enjoyment; while at another his mind dwells on the future, and he is willing to postpone all enjoyments that can conveniently be made to wait. Sometimes he is in a mood to care little for anything else : sometimes he is like the children who pick the plums out of their pudding to eat them at once, sometimes like those who put them aside to be eaten last. And, in any case, when calculating the rate at which a future benefit is discounted, we must be careful to make allowance for the pleasures of expectation.

Desire for lasting sources of

The rates at which different people discount the future affect not only their tendency to save, as the term is ordinarily understood, but also their tendency to buy things which will be a lasting source of

often spoken of as belonging to the science of consumption : but that is only half true. The greatest faults in domestic economy, among the sober portion of the Anglo-Saxon working-classes at all events, are faults of production rather than of consumption.

pleasure rather than those which give a stronger but more transient enjoyment; to buy a new coat rather than to indulge in a drinking bout, or to choose simple furniture that will wear well, rather than showy furniture that will soon fall to pieces.

enjoyment and for ownership.

It is in regard to these things especially that the pleasure of possession makes itself felt. Many people derive from the mere feeling of ownership a stronger satisfaction than they derive from ordinary pleasures in the narrower sense of the term: for example, the delight in the possession of land will often induce people to pay for it so high a price that it yields them but a very poor return on their investment. There is a delight in ownership for its own sake; and there is a delight in ownership on account of the distinction it yields. Sometimes the latter is stronger than the former, sometimes weaker; and perhaps no one knows himself or other people well enough to be able to draw the line quite certainly between the two.

But we cannot really estimate the *quantity* of a future benefit.

§ 4. As has already been urged, we cannot compare the *quantities* of two benefits, which are enjoyed at different times even by the same person. When a person postpones a pleasure-giving event he does not postpone the pleasure; but he gives up a present pleasure and takes in its place another, or an expectation of getting another at a future date: and we cannot tell whether he expects the future pleasure to be greater than the one which he is giving up, unless we know all the circumstances of the case. And therefore, even though we know the rate at which he discounts future pleasurable events, such as spending £1 on immediate gratifications, we yet do not know the rate at which he discounts future pleasures.[1]

We can however get an artificial measure of the rate at which he

[1] In classifying some pleasures as more *urgent* than others, it is often forgotten that the postponement of a pleasurable event may alter the circumstances under which it occurs, and therefore alter the character of the pleasure itself. For instance it may be said that a young man discounts at a very high rate the pleasure of the Alpine tours which he hopes to be able to afford himself when he has made his fortune. He would much rather have them now, partly because they would give him much greater pleasure now.

Again, it may happen that the postponement of a pleasurable event involves an unequal distribution in Time of a certain good, and that the Law of Diminution of Marginal Utility acts strongly in the case of this particular good. For instance, it is sometimes said that the pleasures of eating are specially urgent; and it is undoubtedly true that if a man goes dinnerless for six days in the week and eats seven dinners on the seventh, he loses very much; because when postponing six dinners, he does not postpone the pleasures of eating six separate dinners, but substitutes for them the pleasure of one day's excessive eating. Again, when a person puts away eggs for the winter he does not expect that they will be better flavoured then than now; he expects that they will be scarce, and that therefore their utility will be higher than now. This shows the importance of drawing a clear distinction between discounting a future pleasure, and discounting the pleasure derived from the future enjoyment of a certain amount of a commodity. For in the latter case we must make separate allowance for differences between the marginal utilities of the commodity at the two times: but in the former this has been allowed for once in estimating the amount of the pleasure; and it must not be allowed for again.

III, v, 4.

An artificial measure of the rate of discount of future benefits.

discounts future benefits by making two assumptions. These are, firstly, that he expects to be about as rich at the future date as he is now; and secondly, that his capacity for deriving benefit from the things which money will buy will on the whole remain unchanged, though it may have increased in some directions and diminished in others. On these assumptions, if he is willing, but only just willing, to spare a pound from his expenditure now with the certainty of having (for the disposal of himself or his heirs) a guinea one year hence, we may fairly say that he discounts future benefits that are perfectly secure (subject only to the conditions of human mortality) at the rate of five per cent. per annum. And on these assumptions the rate at which he discounts future (certain) benefits, will be the rate at which he can discount money in the money market.[1]

Future pleasures expected from the ownership of durable commodities.

So far we have considered each pleasure singly; but a great many of the things which people buy are durable, *i.e.* are not consumed in a single use; a durable good, such as a piano, is the probable source of many pleasures, more or less remote; and its value to a purchaser is the aggregate of the usance, or worth to him of all these pleasures, allowance being made for their uncertainty and for their distance.[2]

[1] It is important to remember that, except on these assumptions, there is no direct connection between the rate of discount on the loan of money, and the rate at which future pleasures are discounted. A man may be so impatient of delay that a certain promise of a pleasure ten years hence will not induce him to give up one close at hand which he regards as a quarter as great. And yet if he should fear that ten years hence money may be so scarce with him (and its marginal utility therefore so high) that half-a-crown then may give him more pleasure or save him more pain than a pound now, he will save something for the future even though he have to hoard it, on the same principle that he might store eggs for the winter. But we are here straying into questions that are more closely connected with Supply than with Demand. We shall have to consider them again from different points of view in connection with the Accumulation of Wealth, and later again in connection with the causes that determine the Rate of Interest.

We may however consider here how to measure numerically the present value of a future pleasure, on the supposition that we know, (i) its amount, (ii) the date at which it will come, if it comes at all, (iii) the chance that it will come, and (iv) the rate at which the person in question discounts future pleasures.

If the probability that a pleasure will be enjoyed is three to one, so that three chances out of four are in its favour, the value of its expectation is three-fourths of what it would be if it were certain: if the probability that it will be enjoyed were only seven to five, so that only seven chances out of twelve are in its favour, the value of its expectation is only seven-twelfths of what it would be if the event were certain, and so on. [This is its actuarial value: but further allowance may have to be made for the fact that the true value to anyone of an uncertain gain is generally less than its actuarial value (see the note on p. 174).] If the anticipated pleasure is both uncertain and distant, we have a twofold deduction to make from its full value. We will suppose, for instance, that a person would give 10*s.* for a gratification if it were present and certain, but that it is due a year hence, and the probability of its happening then is three to one. Suppose also that he discounts the future at the rate of twenty per cent. per annum. Then the value to him of the anticipation of it is $\frac{3}{4} \times \frac{80}{100} \times 10s.$ *i.e.* 6*s.* Compare the Introductory chapter of Jevons' *Theory of Political Economy.*

[2] Of course this estimate is formed by a rough instinct; and in any attempt to reduce it to numerical accuracy (see Note V in the Mathematical Appendix), we must recollect what has been said, in this and the preceding Section, as to the impossibility of comparing accurately pleasures or other satisfactions that do not occur at the same time; and also as to the assumption of uniformity involved in supposing the discount of future pleasures to obey the exponential law.

CHAPTER VI

VALUE AND UTILITY

III, VI. 1

Price and Utility.

§ 1. We may now turn to consider how far the price which is actually paid for a thing represents the benefit that arises from its possession. This is a wide subject on which economic science has very little to say, but that little is of some importance.

We have already seen that the price which a person pays for a thing can never exceed, and seldom comes up to that which he would be willing to pay rather than go without it: so that the satisfaction which he gets from its purchase generally exceeds that which he gives up in paying away its price; and he thus derives from the purchase a surplus of satisfaction. The excess of the price which he would be willing to pay rather than go without the thing, over that which he actually does pay, is the economic measure of this surplus satisfaction. It may be called *consumer's surplus.*

Consumer's surplus

It is obvious that the consumer's surpluses derived from some commodities are much greater than from others. There are many comforts and luxuries of which the prices are very much below those which many people would pay rather than go entirely without them; and which therefore afford a very great consumer's surplus. Good instances are matches, salt, a penny newspaper, or a postage-stamp.

is part of the benefit a man derives from his *environment* or *conjuncture.*

This benefit, which he gets from purchasing at a low price things for which he would rather pay a high price than go without them, may be called the benefit which he derives from his *opportunities*, or from his *environment*; or, to recur to a word that was in common use a few generations ago, from his *conjuncture.* Our aim in the present chapter is to apply the notion of consumer's surplus as an aid in estimating roughly some of the benefits which a person derives from his environment or his conjuncture.[1]

[1] This term is a familiar one in German economics, and meets a need which is much felt in English economics. For "opportunity" and "environment," the only available substitutes for it, are sometimes rather misleading. By *Conjunctur*, says Wagner (*Grundlegung* Ed. III. p. 387), "we understand the sum total of the technical, economic, social and legal conditions; which, in a mode of national life (*Volkswirthschaft*) resting upon division of labour and private property,—especially private property in land and other material means of production—determine the demand for and supply of goods, and therefore their exchange value: this determination being as a rule, or at least in the main, *independent* of the will of the owner, of his activity and his remissness."

III, vi, 2.

Consumer's surplus in relation to the demand of an individual.

§ 2. In order to give definiteness to our notions, let us consider the case of tea purchased for domestic consumption. Let us take the case of a man, who, if the price of tea were 20*s*. a pound, would just be induced to buy one pound annually; who would just be induced to buy two pounds if the price were 14*s*., three pounds if the price were 10*s*., four pounds if the price were 6*s*., five pounds if the price were 4*s*., six pounds if the price were 3*s*., and who, the price being actually 2*s*., does purchase seven pounds. We have to investigate the consumer's surplus which he derives from his power of purchasing tea at 2*s*. a pound.

The fact that he would just be induced to purchase one pound if the price were 20*s*., proves that the total enjoyment or satisfaction which he derives from that pound is as great as that which he could obtain by spending 20*s*. on other things. When the price falls to 14*s*., he could, if he chose, continue to buy only one pound. He would then get for 14*s*. what was worth to him at least 20*s*.; and he will obtain a surplus satisfaction worth to him at least 6*s*., or in other words a consumer's surplus of at least 6*s*. But in fact he buys a second pound of his own free choice, thus showing that he regards it as worth to him at least 14*s*., and that this represents the *additional* utility of the second pound to him. He obtains for 28*s*. what is worth to him at least 20*s*. + 14*s*.; *i.e.* 34*s*. His surplus satisfaction is at all events not diminished by buying it, but remains worth at least 6*s*. to him. The total utility of the two pounds is worth at least 34*s*., his consumer's surplus is at least 6*s*.[1] The fact that each

[1] Some further explanations may be given of this statement; though in fact they do little more than repeat in other words what has already been said. The significance of the condition in the text that he buys the second pound of his own free choice is shown by the consideration that if the price of 14*s*. had been offered to him on the condition that he took two pounds, he would then have to elect between taking one pound for 20*s*. or two pounds for 28*s*.: and then his taking two pounds would not have proved that he thought the second pound worth more than 8*s*. to him. But as it is, he takes a second pound paying 14*s*. unconditionally for it; and that proves that it is worth at least 14*s*. to him. (If he can get buns at a penny each, but seven for sixpence; and he elects to buy seven, we know that he is willing to give up his sixth penny for the sake of the sixth and the seventh buns: but we cannot tell how much he would pay rather than go without the seventh bun only.)

It is sometimes objected that as he increases his purchases, the urgency of his need for his earlier purchases is diminished, and their utility falls; therefore we ought to continually redraw the earlier parts of our list of demand prices at a lower level, as we pass along it towards lower prices (*i.e.* to redraw at a lower level our demand curve as we pass along it to the right). But this misconceives the plan on which the list of prices is made out. The objection would have been valid, if the demand price set against each number of pounds of tea represented the *average* utility of that number. For it is true that, if he would pay just 20*s*. for one pound, and just 14*s*. for a second, then he would pay just 34*s*. for the two; *i.e.* 17*s*. each on the average. And if our list had had reference to the *average* prices he would pay, and had set 17*s*. against the second pound; then no doubt we should have had to redraw the list as we passed on. For when he has bought a third pound the average utility to him of each of the three will be less than that of 17*s*.; being in fact 14*s*. 8*d*. if, as we go on to assume, he would pay just 10*s*. for a third pound. But this difficulty is entirely avoided on the plan of making out demand prices which is here adopted; according to which his second pound is credited,

additional purchase reacts upon the utility of the purchases which he had previously decided to make *has already been allowed for in making out the schedule and must not be counted a second time.* III, vi, 2.

When the price falls to 10*s*., he might, if he chose, continue to buy only two pounds; and obtain for 20*s*. what was worth to him at least 34*s*., and derive a surplus satisfaction worth at least 14*s*. But in fact he prefers to buy a third pound: and as he does this freely, we know that he does not diminish his surplus satisfaction by doing it. He now gets for 30*s*. three pounds; of which the first is worth to him at least 20*s*., the second at least 14*s*., and the third at least 10*s*. The total utility of the three is worth at least 44*s*., his consumer's surplus is at least 14*s*., and so on.

When at last the price has fallen to 2*s*. he buys seven pounds, which are severally worth to him not less than 20, 14, 10, 6, 4, 3, and 2*s*. or 59*s*. in all. This sum measures their total utility to him, and his consumer's surplus is (at least) the excess of this sum over the 14*s*. he actually does pay for them, *i.e.* 45*s*. This is the excess value of the satisfaction he gets from buying the tea over that which he could have got by spending the 14*s*. in extending a little his purchase of other commodities, of which he had just not thought it worth while to buy more at their current prices; and any further purchases of which at those prices would not yield him any consumer's surplus. In other words, he derives this 45*s*. worth of surplus enjoyment from his conjuncture, from the adaptation of the environment to his wants in the particular matter of tea. If that adaptation ceased, and tea could not be had at any price, he would have incurred a loss of satisfaction at least equal to that which he could have got by spending 45*s*. more on extra supplies of things that were worth to him only just what he paid for them.[1]

not with the 17*s*. which represents the average value per pound of the two pounds; but with the 14*s*., which represents the *additional* utility which a second pound has for him. For that remains unchanged when he has bought a third pound, of which the additional utility is measured by 10*s*.

The first pound was probably worth to him more than 20*s*. All that we know is that it was not worth less to him. He probably got some small surplus even on that. Again, the second pound was probably worth more than 14*s*. to him. All that we know is that it was worth at least 14*s*. and not worth 20*s*. to him. He would get therefore at this stage a surplus satisfaction of at least 6*s*. probably a little more. A ragged edge of this kind, as mathematicians are aware, always exists when we watch the effects of considerable changes, as that from 20*s*. to 14*s*. a pound. If we had begun with a very high price, had descended by practically infinitesimal changes of a farthing per pound, and watched infinitesimal variations in his consumption of a small fraction of a pound at a time, this ragged edge would have disappeared.

[1] Prof. Nicholson (*Principles of Political Economy*, Vol. I and *Economic Journal*, Vol. IV.) has raised objections to the notion of consumers' surplus, which have been answered by Prof. Edgeworth in the same Journal. Prof. Nicholson says:—"Of what avail is it to say that the utility of an income of (say) £100 a year is worth (say) £1000 a year?" There would be no avail in saying that. But there might be use, when comparing life in Central Africa with life in England, in saying that, though the

III, vi, 3.

Demand of a market.

§ 3. In the same way if we were to neglect for the moment the fact that the same sum of money represents different amounts of pleasure to different people, we might measure the surplus satisfaction which the sale of tea affords, say, in the London market, by the aggregate of the sums by which the prices shown in a complete list of demand prices for tea exceeds its selling price.[1]

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things which money will buy in Central Africa may on the average be as cheap there as here, yet there are so many things which cannot be bought there at all, that a person with a thousand a year there is not so well off as a person with three or four hundred a year here. If a man pays 1*d.* toll on a bridge, which saves him an additional drive that would cost a shilling, we do not say that the penny is worth a shilling, but that the penny together with the advantage offered him by the bridge (the part it plays in his conjuncture) is worth a shilling for that day. Were the bridge swept away on a day on which he needed it, he would be in at least as bad a position as if he had been deprived of eleven pence.

[1] Let us then consider the demand curve DD' for tea in any large market.

Let OH be the amount which is sold there at the price HA annually, a year being taken as our unit of time. Taking any point M in OH let us draw MP vertically upwards to meet the curve in P and cut a horizontal line through A in R. We will suppose the several lbs. numbered in the order of the eagerness of the several purchasers: the eagerness of the purchaser of any lb. being measured by the price he is just willing, to pay for that lb. The figure informs us that OM can be sold at the price PM; but that at any higher price not quite so many lbs. can be sold. There must be then some individual who will buy more at the price PM, than he will at any higher price; and we are to regard the OMth lb. as sold to this individual. Suppose for instance that PM represents 4*s.*, and that OM represents a million lbs. The purchaser described in the text is just willing to buy his fifth lb. of tea at the price 4*s.*, and the OMth or millionth lb, may be said to be sold to him. If AH and therefore RM represents 2*s.*, the consumers' surplus derived from the OMth lb. is the excess of PM or 4*s.* which the purchaser of that lb. would have been willing to pay for it over RM the 2*s.* which he actually does pay for it. Let us suppose that a very thin vertical parallelogram is drawn of which the height is PM and of which the base is the distance along Ox that measures the single unit or lb. of tea. It will be convenient henceforward to regard price as measured not by a mathematical straight line without thickness, as PM; but by a very thin parallelogram, or as it may be called a thick straight line, of which the breadth is in every case equal to the distance along Ox which measures a unit or lb. of tea. Thus we should say that the total satisfaction derived from the OMth lb. of tea is represented (or, on the assumption made in the last paragraph of the text, is measured) by the thick straight line MP; that the price paid for this lb. is represented by the thick straight line MR and the consumers' surplus derived from this lb. by the thick straight line RP. Now let us suppose that such thin parallelograms, or thick straight lines, are drawn from all positions of M between O and H, one for each lb. of tea. The thick straight lines thus drawn, as MP is, from Ox up to the demand curve will each represent the aggregate of the satisfaction derived from a lb. of tea; and taken together thus occupy and exactly fill up the whole area $DOHA$. Therefore we may say that the area $DOHA$ represents the aggregate of the satisfaction derived from the consumption of tea. Again, each of the straight lines drawn, as MR is, from Ox upwards as far as AC represents the price that actually is paid for a lb. of tea. These straight lines together make up the area $COHA$; and therefore this area represents the total price paid for tea. Finally each of the straight lines drawn as RP is from AC upwards as far as the demand curve, represents the consumers' surplus derived from the corresponding lb. of tea. These straight lines together make up the area DCA; and therefore this area represents the total consumers' surplus that is derived from tea when the price is AH. But it must be repeated that this geometrical measurement is only an aggregate of the measures of benefits which are not all measured on the same scale except on the assumption just made in the text. Unless that assumption is made the area only represents an aggregate of satisfactions, the several amounts of which are not exactly measured. On that assumption only, its area measures the volume of the total *net* satisfaction derived from the tea by its various purchasers.

D
P
R
A
C
D'
O
M
H
x

Fig. 10.

This analysis, with its new names and elaborate machinery, appears at first sight laboured and unreal. On closer study it will be found to introduce no new difficulties and to make no new assumptions; but only to bring to light difficulties and assumptions that are latent in the common language of the market-place. For in this, as in other cases, the apparent simplicity of popular phrases veils a real complexity, and it is the duty of science to bring out that latent complexity; to face it; and to reduce it as far as possible: so that, in later stages we may handle firmly difficulties that could not be grasped with a good grip by the vague thought and language of ordinary life. III, vi, 3.

This analysis aims only at giving definite expression to familiar notions.

It is a common saying in ordinary life that the real worth of things to a man is not gauged by the price he pays for them: that though he spends for instance much more on tea than on salt, yet salt is of greater real worth to him; and that this would be clearly seen if he were entirely deprived of it. This line of argument is but thrown into precise technical form when it is said that we cannot trust the marginal utility of a commodity to indicate its total utility. If some shipwrecked men, expecting to wait a year before they were rescued, had a few pounds of tea and the same number of pounds of salt to divide between them, the salt would be the more highly prized; because the marginal utility of an ounce of salt, when a person expects to get only a few of them in the year, is greater than that of tea under like circumstances. But, under ordinary circumstances, the price of salt being low, every one buys so much of it that an additional pound would bring him little additional satisfaction: the total utility of salt to him is very great indeed, and yet its marginal utility is low. On the other hand, since tea is costly, most people use less of it and let the water stay on it rather longer than they would, if it could be got at nearly as low a price as salt can. Their desire for it is far from being satiated: its marginal utility remains high, and they may be willing to pay as much for an additional ounce of it as they would for an additional pound of salt. The common saying of ordinary life with which we began suggests all this: but not in an exact and definite form, such as is needed for a statement which will often be applied in later work. The use of technical terms at starting adds nothing to knowledge: but it puts familiar knowledge in a firm compact shape, ready to serve as the basis for further study.[1]

[1] Harris *On Coins* 1757, says "Things in general are valued, not according to their real uses in supplying the necessities of men; but rather in proportion to the land, labour and skill that are requisite to produce them. It is according to this proportion nearly, that things or commodities are exchanged one for another; and

III, vi, 3.

In regard to different people allowance may have to be made where necessary for differences of sensibility

Or the real worth of a thing might be discussed with reference not to a single person but to people in general; and thus it would naturally be assumed that a shilling's worth of gratification to one Englishman might be taken as equivalent with a shilling's worth to another, "to start with," and "until cause to the contrary were shown." But everyone would know that this was a reasonable course only on the supposition that the consumers of tea and those of salt belonged to the same classes of people; and included people of every variety of temperament.[1]

and for differences of wealth:

This involves the consideration that a pound's worth of satisfaction to an ordinary poor man is a much greater thing than a pound's worth of satisfaction to an ordinary rich man: and if instead of comparing tea and salt, which are both used largely by all classes, we compared either of them with champagne or pineapples, the correction to be made on this account would be more than important: it would change the whole character of the estimate. In earlier generations many statesmen, and even some economists, neglected to make adequate allowance for considerations of this class, especially when constructing schemes of taxation; and their words or deeds seemed to imply a want of sympathy with the sufferings of the poor; though more often they were due simply to want of thought.

but it is seldom needed in considering large groups of people.

On the whole however it happens that by far the greater number of the events with which economics deals, affect in about equal proportions all the different classes of society; so that if the money measures of the happiness caused by two events are equal, there is not in general any very great difference between the amounts of the happiness in the two cases. And it is on account of this fact that the exact measurement of the consumers' surplus in a market has already much theoretical interest, and may become of high practical importance.

It will be noted however that the demand prices of each com-

it is by the said scale, that the intrinsic values of most things are chiefly estimated. Water is of great use, and yet ordinarily of little or no value; because in most places, water flows spontaneously in such great plenty, as not to be withheld within the limits of private property; but all may have enough, without other expense than that of bringing or conducting it, when the case so requires. On the other hand, diamonds being very scarce, have upon that account a great value, though they are but little use."

[1] There might conceivably be persons of high sensibility who would suffer specially from the want of either salt or tea: or who were generally sensitive, and would suffer more from the loss of a certain part of their income than others in the same station of life. But it would be assumed that such differences between individuals might be neglected, since we were considering in either case the average of large numbers of people; though of course it might be necessary to consider whether there were some special reason for believing, say, that those who laid most store by tea were a specially sensitive class of people. If it could, then a separate allowance for this would have to be made before applying the results of economical analysis to practical problems of ethics or politics.

modity, on which our estimates of its total utility and consumers' surplus are based, assume that *other things remain equal*, while its price rises to scarcity value: and when the total utilities of two commodities which contribute to the same purpose are calculated on this plan, we cannot say that the total utility of the two together is equal to the sum of the total utilities of each separately.[1] III, vi, 4.

It is seldom necessary to take account of changes in the purchaser's command of money.

§ 4. The substance of our argument would not be affected if we took account of the fact that, the more a person spends on anything the less power he retains of purchasing more of it or of other things, and the greater is the value of money to him (in technical language every fresh expenditure increases the marginal value of money to him). But though its substance would not be altered, its form would be made more intricate without any corresponding gain; for there are very few practical problems, in which the corrections to be made under this head would be of any importance.[2]

There are however some exceptions. For instance, as Sir R. Giffen has pointed out, a rise in the price of bread makes so large a drain on the resources of the poorer labouring families and raises so

[1] Some ambiguous phrases in earlier editions appear to have suggested to some readers the opposite opinion. But the task of adding together the total utilities of all commodities, so as to obtain the aggregate of the total utility of all wealth, is beyond the range of any but the most elaborate mathematical formulæ. An attempt to treat it by them some years ago convinced the present writer that even if the task be theoretically feasible, the result would be encumbered by so many hypotheses as to be practically useless.

Attention has already (pp. 84 n.[*], 89 n.[1]) been called to the fact that for some purposes such things as tea and coffee must be grouped together as one commodity: and it is obvious that, if tea were inaccessible, people would increase their consumption of coffee, and *vice versa*. The loss that people would suffer from being deprived both of tea and coffee would be greater than the sum of their losses from being deprived of either alone: and therefore the total utility of tea and coffee is greater than the sum of the total utility of tea calculated on the supposition that people can have recourse to coffee, and that of coffee calculated on a like supposition as to tea. This difficulty can be theoretically evaded by grouping the two "rival" commodities together under a common demand schedule. On the other hand, if we have calculated the total utility of fuel with reference to the fact that without it we could not obtain hot water to obtain the beverage tea from tea leaves, we should count something twice over if we added to that utility the total utility of tea leaves, reckoned on a similar plan. Again the total utility of agricultural produce includes that of ploughs; and the two may not be added together; though the total utility of ploughs may be discussed in connection with one problem, and that of wheat in connection with another. Other aspects of these two difficulties are examined in V. vi.

Prof. Patten has insisted on the latter of them in some able and suggestive writings. But his attempt to express the aggregate utility of all forms of wealth seems to overlook many difficulties.

[2] In mathematical language the neglected elements would generally belong to the second order of small quantities; and the legitimacy of the familiar scientific method by which they are neglected would have seemed beyond question, had not Prof. Nicholson challenged it. A short reply to him has been given by Prof. Edgeworth in the *Economic Journal* for March 1894; and a fuller reply by Prof. Barone in the *Giornale degli Economisti* for Sept. 1894; of which some account is given by Mr. Sanger in the *Economic Journal* for March 1895.

As is indicated in Note VI in the Mathematical Appendix, formal account could be taken of changes in the marginal utility of money, if it were desired to do so. If we attempted to add together the total utilities of all commodities, we should be bound to do so: that task is however impracticable.

III, VI, 5. much the marginal utility of money to them, that they are forced to curtail their consumption of meat and the more expensive farinaceous foods: and, bread being still the cheapest food which they can get and will take, they consume more, and not less of it. But such cases are rare; when they are met with, each must be treated on its own merits.

We can seldom obtain a complete list of demand prices: nor do we often need them.

It has already been remarked that we cannot guess at all accurately how much of anything people would buy at prices very different from those which they are accustomed to pay for it: or in other words, what the demand prices for it would be for amounts very different from those which are commonly sold. Our list of demand prices is therefore highly conjectural except in the neighbourhood of the customary price; and the best estimates we can form of the whole amount of the utility of anything are liable to large error. But this difficulty is not important practically. For the chief applications of the doctrine of consumers' surplus are concerned with such changes in it as would accompany changes in the price of the commodity in question in the neighbourhood of the customary price: that is, they require us to use only that information with which we are fairly well supplied. These remarks apply with special force to necessaries.[1]

Elements of collective wealth are apt to be overlooked.

§ 5. There remains another class of considerations which are apt to be overlooked in estimating the dependence of wellbeing upon material wealth. Not only does a person's happiness often depend more on his own physical, mental and moral health than on his

[1] The notion of consumers' surplus may help us a little now; and, when our statistical knowledge is further advanced, it may help us a great deal to decide how much injury would be done to the public by an additional tax of 6*d*. a pound on tea, or by an addition of ten per cent. to the freight charges of a railway: and the value of the notion is but little diminished by the fact that it would not help us much to estimate the loss that would be caused by a tax of 30*s*. a pound on tea, or a tenfold rise in freight charges.

Reverting to our last diagram, we may express this by saying that, if A is the point on the curve corresponding to the amount that is wont to be sold in the market, data can be obtained sufficient for drawing the curve with tolerable correctness for some distance on either side of A; though the curve can seldom be drawn with any approach to accuracy right up to D. But this is practically unimportant, because in the chief practical applications of the theory of value we should seldom make any use of a knowledge of the whole shape of the demand curve if we had it. We need just what we can get, that is, a fairly correct knowledge of its shape in the neighbourhood of A. We seldom require to ascertain the total area DCA; it is sufficient for most of our purposes to know the changes in this area that would be occasioned by moving A through small distances along the curve in either direction. Nevertheless it will save trouble to assume provisionally, as in pure theory we are at liberty to do, that the curve is completely drawn.

There is however a special difficulty in estimating the whole of the utility of commodities some supply of which is necessary for life. If any attempt is made to do it, the best plan is perhaps to take that necessary supply for granted, and estimate the total utility only of that part of the commodity which is in excess of this amount. But we must recollect that the desire for anything is much dependent on the difficulty of getting substitutes for it. (See Note VI in the Mathematical Appendix.)

external conditions: but even among these conditions many that are of chief importance for his real happiness are apt to be omitted from an inventory of his wealth. Some are free gifts of nature; and these might indeed be neglected without great harm if they were always the same for everybody; but in fact they vary much from place to place. More of them however are elements of collective wealth which are often omitted from the reckoning of individual wealth; but which become important when we compare different parts of the modern civilized world, and even more important when we compare our own age with earlier times.

So-called consumers' associations belong to the subject of Production.

Collective action for the purpose of securing common wellbeing, as for instance in lighting and watering the streets, will occupy us much towards the end of our inquiries. Co-operative associations for the purchase of things for personal consumption have made more progress in England than elsewhere: but those for purchasing the things wanted for trade purposes by farmers and others, have until lately been backward in England. Both kinds are sometimes described as Consumers' associations; but they are really associations for economizing effort in certain branches of business, and belong to the subject of Production rather than Consumption.

We are here concerned with large incomes rather than large possessions.

§ 6. When we speak of the dependence of wellbeing on material wealth, we refer to the flow or stream of wellbeing as measured by the flow or stream of incoming wealth and the consequent power of using and consuming it. A person's stock of wealth yields by its usance and in other ways an income of happiness, among which of course are to be counted the pleasures of possession: but there is little direct connection between the aggregate amount of that stock and his aggregate happiness. And it is for that reason that we have throughout this and preceding chapters spoken of the rich, the middle classes and the poor as having respectively large, medium and small incomes—not possessions.[1]

Bernoulli's suggestion.

In accordance with a suggestion made by Daniel Bernoulli, we may regard the satisfaction which a person derives from his income as commencing when he has enough to support life, and afterwards as increasing by equal amounts with every equal successive percentage that is added to his income; and *vice versa* for loss of income.[2]

[1] See Note VII in the Appendix.

[2] That is to say, if £30 represent necessaries, a person's satisfaction from his income will begin at that point; and when it has reached £40, an additional £1 will add a tenth to the £10 which represents its happiness-yielding power. But if his income were £100, that is £70 above the level of necessaries, an additional £7 would be required to add as much to his happiness as £1 if his income were £40: while if his income were £10,000, an additional £1000 would be needed to produce an equal effect (compare Note VIII in the Appendix). Of course such estimates are very much at random, and unable to adapt themselves to the varying circum-

III, vi, 6.

The edge of enjoyment is blunted by familiarity.

But after a time new riches often lose a great part of their charms. Partly this is the result of familiarity; which makes people cease to derive much pleasure from accustomed comforts and luxuries, though they suffer greater pain from their loss. Partly it is due to the fact that with increased riches there often comes either the weariness of age, or at least an increase of nervous strain; and perhaps even habits of living that lower physical vitality, and diminish the capacity for pleasure.

The value of leisure and rest.

In every civilized country there have been some followers of the Buddhist doctrine that a placid serenity is the highest ideal of life; that it is the part of the wise man to root out of his nature as many wants and desires as he can; that real riches consist not in the abundance of goods but in the paucity of wants. At the other extreme are those who maintain that the growth of new wants and desires is always beneficial because it stimulates people to increased exertions. They seem to have made the mistake, as Herbert Spencer says, of supposing that life is for working, instead of working for life.[1]

The excellence of a moderate income obtained by moderate work.

The truth seems to be that as human nature is constituted, man rapidly degenerates unless he has some hard work to do, some difficulties to overcome; and that some strenuous exertion is necessary for physical and moral health. The fulness of life lies in the development and activity of as many and as high faculties as possible. There is intense pleasure in the ardent pursuit of any aim, whether it be success in business, the advancement of art and science, or the improvement of the condition of one's fellow-beings. The

stances of individual life. As we shall see later, the systems of taxation which are now most widely prevalent follow generally on the lines of Bernoulli's suggestion. Earlier systems took from the poor very much more than would be in accordance with that plan; while the systems of graduated taxation, which are being foreshadowed in several countries, are in some measure based on the assumption that the addition of one per cent. to a very large income adds less to the wellbeing of its owner than an addition of one per cent. to smaller incomes would, even after Bernoulli's correction for necessaries has been made.

It may be mentioned in passing that from the general law that the utility to anyone of an additional £1 diminishes with the number of pounds he already has, there follow two important practical principles. The first is that gambling involves an economic loss, even when conducted on perfectly fair and even terms. For instance, a man who having £600 makes a fair even bet of £100, has now an expectation of happiness equal to half that derived from £700, and half that derived from £500; and this is less than the certain expectation of the happiness derived from £600, because by hypothesis the difference between the happiness got from £600 and £500 is greater than the difference between the happiness got from £700 and £600. (Compare Note IX in the Appendix and Jevons, *l.c.* Ch. iv.) The second principle, the direct converse of the first, is that a theoretically fair insurance against risks is always an economic gain. But of course every insurance office, after calculating what is a theoretically fair premium, has to share in addition to it enough to pay profits on its own capital, and to cover its own expenses of working, among which are often to be reckoned very heavy items for advertising and for losses by fraud. The question whether it is advisable to pay the premium which insurance offices practically do charge, is one that must be decided for each case on its own merits.

[1] See his lecture on *The Gospel of Relaxation*.

III, vi, 6.

highest constructive work of all kinds must often alternate between periods of over-strain and periods of lassitude and stagnation; but for ordinary people, for those who have no strong ambitions, whether of a lower or a higher kind, a moderate income earned by moderate and fairly steady work offers the best opportunity for the growth of those habits of body, mind, and spirit in which alone there is true happiness.

Expenditure for the sake of display.

There is some misuse of wealth in all ranks of society. And though, speaking generally, we may say that every increase in the wealth of the working classes adds to the fulness and nobility of human life, because it is used chiefly in the satisfaction of real wants; yet even among the artisans in England, and perhaps still more in new countries, there are signs of the growth of that unwholesome desire for wealth as a means of display which has been the chief bane of the well-to-do classes in every civilized country. Laws against luxury have been futile; but it would be a gain if the moral sentiment of the community could induce people to avoid all sorts of display of individual wealth. There are indeed true and worthy pleasures to be got from wisely ordered magnificence: but they are at their best when free from any taint of personal vanity on the one side and envy on the other; as they are when they centre round public buildings, public parks, public collections of the fine arts, and public games and amusements. So long as wealth is applied to provide for every family the necessaries of life and culture, and an abundance of the higher forms of enjoyment for collective use, so long the pursuit of wealth is a noble aim; and the pleasures which it brings are likely to increase with the growth of those higher activities which it is used to promote.

The superior nobility of the collective over the private use of wealth.

When the necessaries of life are once provided, everyone should seek to increase the beauty of things in his possession rather than their number or their magnificence. An improvement in the artistic character of furniture and clothing trains the higher faculties of those who make them, and is a source of growing happiness to those who use them. But if instead of seeking for a higher standard of beauty, we spend our growing resources on increasing the complexity and intricacy of our domestic goods, we gain thereby no true benefit, no lasting happiness. The world would go much better if everyone would buy fewer and simpler things, and would take trouble in selecting them for their real beauty; being careful of course to get good value in return for his outlay, but preferring to buy a few things made well by highly paid labour rather than many made badly by low paid labour.

The tasteful purchaser educates the producer.

We thus approach the fringe of broad inquiries, which must be deferred.

III, vi, 6. But we are exceeding the proper scope of the present Book; the discussion of the influence on general wellbeing which is exerted by the mode in which each individual spends his income is one of the more important of those applications of economic science to the art of living.

BOOK IV

THE AGENTS OF PRODUCTION

LAND, LABOUR, CAPITAL AND ORGANIZATION

CHAPTER I

INTRODUCTORY

IV, i, 1.

The agents of production may be classed under three heads,

§ 1. The agents of production are commonly classed as Land, Labour and Capital. By Land is meant the material and the forces which Nature gives freely for man's aid, in land and water, in air and light and heat. By Labour is meant the economic work of man, whether with the hand or the head.[1] By Capital is meant all stored-up provision for the production of material goods, and for the attainment of those benefits which are commonly reckoned as part of income. It is the main stock of wealth regarded as an agent of production rather than as a direct source of gratification.

Capital consists in a great part of knowledge and organization: and of this some part is private property and other part is not. Knowledge is our most powerful engine of production; it enables us to subdue Nature and force her to satisfy our wants. Organization aids knowledge; it has many forms, *e.g.* that of a single business, that of various businesses in the same trade, that of various trades relatively to one another, and that of the State providing security for all and help for many. The distinction between public and private property in knowledge and organization is of great and growing importance: in some respects of more importance than that between public and private property in material things; and partly for that reason it seems best sometimes to reckon Organization apart as a distinct agent of production. It cannot be fully examined till a much later stage in our inquiry; but something has to be said of it in the present Book.

[1] Labour is classed as economic when it is "undergone partly or wholly with a view to some good other than the pleasure directly derived from it." See p. 54 and footnote. Such labour with the head as does not tend directly or indirectly to promote material production, as for instance the work of the schoolboy at his tasks, is left out of account, so long as we are confining our attention to production in the ordinary sense of the term. From some points of view, but not from all, the phrase Land, Labour, Capital would be more symmetrical if labour were interpreted to mean the labourers, *i.e.* mankind. See Walras, *Économie Politique Pure*, Leçon 17, and Prof. Fisher, *Economic Journal*, vi. p. 529.

IV, I, 2.

but for some purposes under two.

In a sense there are only two agents of production, nature and man. Capital and organization are the result of the work of man aided by nature, and directed by his power of forecasting the future and his willingness to make provision for it. If the character and powers of nature and of man be given, the growth of wealth and knowledge and organization follow from them as effect from cause. But on the other hand man is himself largely formed by his surroundings, in which nature plays a great part: and thus from every point of view man is the centre of the problem of production as well as that of consumption; and also of that further problem of the relations between the two, which goes by the twofold name of Distribution and Exchange.

Man both the end and an agent of production.

The growth of mankind in numbers, in health and strength, in knowledge, ability, and in richness of character is the end of all our studies: but it is an aim to which economics can do no more than contribute some important elements. In its broader aspects therefore the study of this growth belongs to the end, if to any part of a treatise on economics: but does not properly belong even there. Meanwhile we cannot avoid taking account of the direct agency of man in production, and of the conditions which govern his efficiency as a producer. And on the whole it is perhaps the most convenient course, as it certainly is that most in accordance with English tradition, to include some account of the growth of population in numbers and character as a part of the general discussion of production.

Provisional antithesis of demand and supply,

§ 2. It is not possible at this stage to do more than indicate very slightly the general relations between demand and supply, between consumption and production. But it may be well, while the discussion of utility and value is fresh in our minds, to take a short glance at the relations between value and the disutility or discommodity that has to be overcome in order to obtain those goods which have value because they are at once desirable and difficult of attainment. All that can be said now must be provisional; and may even seem rather to raise difficulties than to solve them: and there will be an advantage in having before us a map, in however slight and broken outline, of the ground to be covered.

ordinary labour being selected for illustration.

While demand is based on the desire to obtain commodities, supply depends mainly on the overcoming of the unwillingness to undergo "discommodities." These fall generally under two heads:—labour, and the sacrifice involved in putting off consumption. It must suffice here to give a sketch of the part played by ordinary labour in supply. It will be seen hereafter that remarks

similar, though not quite the same, might have been made about the work of management and the sacrifice which is involved (sometimes, but not always) in that waiting which is involved in accumulating the means of production. IV, I, 2.

The discommodity of labour may arise from bodily or mental fatigue, or from its being carried on in unhealthy surroundings, or with unwelcome associates, or from its occupying time that is wanted for recreation, or for social or intellectual pursuits. But whatever be the form of the discommodity, its intensity nearly always increases with the severity and the duration of labour. The discommodities of labour are various,

Of course much exertion is undergone for its own sake, as for instance in mountaineering, in playing games and in the pursuit of literature, of art, and of science; and much hard work is done under the influence of a desire to benefit others.[1] But the chief motive to most labour, in our use of the term, is the desire to obtain some material advantage; which in the present state of the world appears generally in the form of the gain of a certain amount of money. It is true that even when a man is working for hire he often finds pleasure in his work: but he generally gets so far tired before it is done that he is glad when the hour for stopping arrives. Perhaps after he has been out of work for some time, he might, as far as his immediate comfort is concerned, rather work for nothing than not work at all; but he will probably prefer not to spoil his market, any more than a manufacturer would, by offering what he has for sale much below its normal price. On this matter much will need to be said in another volume. as are its motives.

In technical phrase this may be called the *marginal disutility* of labour. For, as with every increase in the amount of a commodity its marginal utility falls; and as with every fall in that desirableness, there is a fall in the price that can be got for the whole of the commodity, and not for the last part only; so the marginal disutility of labour generally increases with every increase in its amount.

[1] We have seen (p. 103) that, if a person makes the whole of his purchases at the price which he would be just willing to pay for his last purchases, he gains a surplus of satisfaction on his earlier purchases; since he gets them for less than he would have paid rather than go without them. So, if the price paid to him for doing any work is an adequate reward for that part which he does most unwillingly; and if, as generally happens, the same payment is given for that part of the work which he does less unwillingly and at less real cost to himself; then from that part he obtains a producer's surplus. Some difficulties connected with this notion are considered in Appendix K.

The labourer's unwillingness to sell his labour for less than its normal price resembles the unwillingness of manufacturers to spoil their market by pushing goods for sale at a low price; even though, so far as the particular transaction is concerned, they would rather take the low price than let their works stand idle.

IV, I, 2.

Though much work is pleasurable,

The unwillingness of anyone already in an occupation to increase his exertions depends, under ordinary circumstances, on fundamental principles of human nature which economists have to accept as ultimate facts. As Jevons remarks,[1] there is often some resistance to be overcome before setting to work. Some little painful effort is often involved at starting; but this gradually diminishes to zero, and is succeeded by pleasure; which increases for a while until it attains a certain low maximum; after which it diminishes to zero, and is succeeded by increasing weariness and craving for relaxation and change. In intellectual work, however, the pleasure and excitement, after they have once set in, often go on increasing till progress is stopped of necessity or by prudence. Everyone in health has a certain store of energy on which he can draw, but which can only be replaced by rest; so that if his expenditure exceed his income for long, his health becomes bankrupt; and employers often find that in cases of great need a temporary increase of pay will induce their workmen to do an amount of work which they cannot long keep up, whatever they are paid for it. One reason of this is that the need for relaxation becomes more urgent with every increase in the hours of labour beyond a certain limit. The disagreeableness of additional work increases; partly because, as the time left for rest and other activities diminishes, the agreeableness of additional free time increases.

yet on certain suppositions the willingness to do it is governed by the price to be got for it.

Subject to these and some other qualifications, it is broadly true that the exertions which any set of workers will make, rise or fall with a rise or fall in the remuneration which is offered to them. As the price required to attract purchasers for any given amount of a commodity, was called the demand price for that amount during a year or any other given time; so the price required to call forth the exertion necessary for producing any given amount of a commodity, may be called the *supply price* for that amount during the same time. And if for the moment we assumed that production depended solely upon the exertions of a certain number of workers, already in existence and trained for their work, we should get a list of supply prices corresponding to the list of demand prices which we have already considered. This list would set forth theoretically in one column of figures various amounts of exertion and therefore of production; and in a parallel column the prices which must be paid to induce the available workers to put forth these amounts of exertion.[2]

Supply price.

But this simple method of treating the supply of work of any

[1] *Theory of Political Economy*, Ch. v. This doctrine has been emphasized and developed in much detail by Austrian and American economists.

[2] See above III, III, 4.

Forecast of the difficulty of this problem in real life.

kind, and consequently the supply of goods made by that work, assumes that the number of those who are qualified for it is fixed; and that assumption can be made only for short periods of time. The total numbers of the people change under the action of many causes. Of these causes only some are economic; but among them the average earnings of labour take a prominent place; though their influence on the growth of numbers is fitful and irregular.

But the distribution of the population between different trades is more subject to the influence of economic causes. In the long run the supply of labour in any trade is adapted more or less closely to the demand for it: thoughtful parents bring up their children to the most advantageous occupations to which they have access; that is to those that offer the best reward, in wages and other advantages, in return for labour that is not too severe in quantity or character, and for skill that is not too hard to be acquired. This adjustment between demand and supply can however never be perfect; fluctuations of demand may make it much greater or much less for a while, even for many years, than would have been just sufficient to induce parents to select for their children that trade rather than some other of the same class. Although therefore the reward to be had for any kind of work at any time does stand in some relation to the difficulty of acquiring the necessary skill combined with the exertion, the disagreeableness, the waste of leisure, etc. involved in the work itself; yet this correspondence is liable to great disturbances. The study of these disturbances is a difficult task; and it will occupy us much in later stages of our work. But the present Book is mainly descriptive and raises few difficult problems.

CHAPTER II

THE FERTILITY OF LAND

IV, II, 1.

The notion that land is a free gift of nature while the produce of land is due to man's work is a loose one: but there is a truth underlying it.

§ 1. THE requisites of production are commonly spoken of as land, labour and capital: those material things which owe their usefulness to human labour being classed under capital, and those which owe nothing to it being classed as land. The distinction is obviously a loose one: for bricks are but pieces of earth slightly worked up; and the soil of old settled countries has for the greater part been worked over many times by man, and owes to him its present form. There is however a scientific principle underlying the distinction. While man has no power of creating matter, he creates utilities by putting things into a useful form;[1] and the utilities made by him can be increased in supply if there is an increased demand for them: they have a supply price. But there are other utilities over the supply of which he has no control; they are given as a fixed quantity by nature and have therefore no supply price. The term "land" has been extended by economists so as to include the permanent sources of these utilities;[2] whether they are found in land, as the term is commonly used, or in seas and rivers, in sunshine and rain, in winds and waterfalls.

When we have inquired what it is that marks off land from those material things which we regard as products of the land, we shall find that the fundamental attribute of land is its extension. The right to use a piece of land gives command over a certain space—a certain part of the earth's surface. The area of the earth is fixed: the geometric relations in which any particular part of it stands to other parts are fixed. Man has no control over them; they are wholly unaffected by demand; they have no cost of production, there is no supply price at which they can be produced.

The use of a certain area of the earth's surface is a primary condition of anything that man can do; it gives him room for his

[1] See Book II. Chapter III.

[2] In Ricardo's famous phrase "the original and indestructible powers of the soil." Von Thünen, in a noteworthy discussion of the basis of the theory of rent, and of the positions which Adam Smith and Ricardo took with regard to it, speaks of "Der Boden an sich"; a phrase which unfortunately cannot be translated, but which means the soil as it would be by itself, if not altered by the action of man (*Der Isolirte Staat*, I. i. 5).

own actions, with the enjoyment of the heat and the light, the air IV, II, 2.
and the rain which nature assigns to that area; and it determines his distance from, and in a great measure his relations to, other things and other persons. We shall find that it is this property of "land" which, though as yet insufficient prominence has been given to it, is the ultimate cause of the distinction which all writers on economics are compelled to make between land and other things. It is the foundation of much that is most interesting and most difficult in economic science.

Some parts of the earth's surface contribute to production chiefly by the services which they render to the navigator: others are of chief value to the miner; others—though this selection is made by man rather than by nature—to the builder. But when the productiveness of land is spoken of our first thoughts turn to its agricultural use.

Conditions of fertility.

§ 2. To the agriculturist an area of land is the means of supporting a certain amount of vegetable, and perhaps ultimately of animal, life. For this purpose the soil must have certain mechanical and chemical qualities.

Mechanically, it must be so far yielding that the fine roots of plants can push their way freely in it; and yet it must be firm enough to give them a good hold. It must not err as some sandy soils do by affording water too free a passage: for then it will often be dry, and the plant food will be washed away almost as soon as it is formed in the soil or put into it. Nor must it err, as stiff clays do, by not allowing the water a fairly free passage. For constant supplies of fresh water, and of the air that it brings with it in its journey through the soil, are essential: they convert into plant food the minerals and gases that otherwise would be useless or even poisonous. The action of fresh air and water and of frosts are nature's tillage of the soil; and even unaided they will in time make almost any part of the earth's surface fairly fertile if the soil that they form can rest where it is, and is not torn away down-hill by rain and torrents as soon as it is formed. But man gives great aid in this mechanical preparation of the soil. The chief purpose of his tillage is to help nature to enable the soil to hold plant roots gently but firmly, and to enable the air and water to move about freely in it. And farmyard manure subdivides clay soils and makes them lighter and more open; while to sandy soils it gives a much needed firmness of texture, and helps them, mechanically as well as chemically, to hold the materials of plant food which would otherwise be quickly washed out of them.

IV, II, 3.

Chemical conditions of fertility.

Chemically the soil must have the inorganic elements that the plant wants in a form palatable to it; and in some cases man can make a great change with but little labour. For he can then turn a barren into a very fertile soil by adding a small quantity of just those things that are needed; using in most cases either lime in some of its many forms, or those artificial manures which modern chemical science has provided in great variety: and he is now calling in the aid of bacteria to help him in this work.

Man's power of altering the character of the soil.

§ 3. By all these means the fertility of the soil can be brought under man's control. He can by sufficient labour make almost any land bear large crops. He can prepare the soil mechanically and chemically for whatever crops he intends to grow next. He can adapt his crops to the nature of the soil and to one another; selecting such a rotation that each will leave the land in such a state, and at such a time of year, that it can be worked up easily and without loss of time into a suitable seed bed for the coming crop. He can even permanently alter the nature of the soil by draining it, or by mixing with it other soil that will supplement its deficiencies. Hitherto this has been done only on a small scale; chalk and lime, clay and marl have been but thinly spread over the fields; a completely new soil has seldom been made except in gardens and other favoured spots. But it is possible, and even as some think probable, that at some future time the mechanical agencies used in making railways and other great earthworks may be applied on a large scale to creating a rich soil by mixing two poor soils with opposite faults.

All these changes are likely to be carried out more extensively and thoroughly in the future than in the past. But even now the greater part of the soil in old countries owes much of its character to human action; all that lies just below the surface has in it a large element of capital, the produce of man's past labour. Those free gifts of nature which Ricardo classed as the "inherent" and "indestructible" properties of the soil, have been largely modified; partly impoverished and partly enriched by the work of many generations of men.

But it is different with that which is above the surface. Every acre has given to it by nature an annual income of heat and light, of air and moisture; and over these man has but little control. He may indeed alter the climate a little by extensive drainage works or by planting forests, or cutting them down. But, on the whole, the action of the sun and the wind and the rain are an annuity fixed by nature for each plot of land. Ownership of the land gives

possession of this annuity: and it also gives the space required for the life and action of vegetables and animals; the value of this space being much affected by its geographical position.

Original and artificial properties of land.

We may then continue to use the ordinary distinction between the original or inherent properties, which the land derives from nature, and the artificial properties which it owes to human action; provided we remember that the first include the space-relations of the plot in question, and the annuity that nature has given it of sunlight and air and rain; and that in many cases these are the chief of the inherent properties of the soil. It is chiefly from them that the ownership of agricultural land derives its peculiar significance, and the Theory of Rent its special character.

The original qualities count for more and the artificial for less in some cases than in others.

§ **4.** But the question how far the fertility of any soil is due to the original properties given to it by nature, and how far to the changes in it made by man, cannot be fully discussed without taking account of the kind of produce raised from it. Human agency can do much more to promote the growth of some crops than of others. At one end of the scale are forest trees; an oak well planted and with plenty of room has very little to gain from man's aid: there is no way of applying labour to it so as to obtain any considerable return. Nearly the same may be said of the grass on some rich river bottoms which are endowed with a rich soil and good natural drainage; wild animals feeding off this grass without man's care will farm it nearly as well as he does; and much of the richest farm land in England (paying a rent of £6 an acre and upwards) would give to unaided nature almost as great a return as is got from it now. Next comes land which, though not quite so rich, is still kept in permanent pasture; and after this comes arable land on which man does not trust to nature's sowing, but prepares for each crop a seed bed to suit its special wants, sows the seed himself and weeds away the rivals to it. The seeds which he sows are selected for their habit of quickly maturing and fully developing just those parts which are most useful to him; and though the habit of making this selection carefully is only quite modern, and is even now far from general, yet the continued work of thousands of years has given him plants that have but little resemblance to their wild ancestors. Lastly, the kinds of produce which owe most to man's labour and care are the choicer kinds of fruits, flowers and vegetables, and of animals, particularly those which are used for improving their own breeds. For while nature left to herself would select those that are best able to take care of themselves and their offspring, man selects those which will provide him most quickly with the largest supplies

IV, II, 4. of the things he most wants; and many of the choicest products could not hold their own at all without his care.

In any case the extra return to additional capital and labour diminishes sooner or later.

Thus various then are the parts which man plays in aiding nature to raise the different kinds of agricultural produce. In each case he works on till the extra *return* got by extra capital and labour has so far *diminished* that it will no longer remunerate him for applying them. Where this limit is soon reached he leaves nature to do nearly all the work; where his share in the production has been great, it is because he has been able to work far without reaching this limit. We are thus brought to consider the law of diminishing return.

The return is here measured by the quantity of the produce, not by its value.

It is important to note that the return to capital and labour now under discussion is measured by the *amount* of the produce raised independently of any changes that may meanwhile take place in the exchange value or price of produce; such, for instance, as might occur if a new railway had been made in the neighbourhood, or the population of the county had increased much, while agricultural produce could not be imported easily. Such changes will be of vital importance when we come to draw inferences from the law of diminishing return, and particularly when we discuss the pressure of increasing population on the means of subsistence. But they have no bearing on the law itself, because that has to do not with the value of the produce raised, but only with its amount.[1]

[1] But see the latter part of IV. III. 8; also IV. XIII. 2.

CHAPTER III

THE FERTILITY OF LAND, CONTINUED. THE TENDENCY TO DIMINISHING RETURN

Provisional statement of the tendency to diminishing return.

§ 1. *The law of* or *statement of tendency to Diminishing Return* may be provisionally worded thus:

An increase in the capital and labour applied in the cultivation of land causes *in general* a less than proportionate increase in the amount of produce raised, unless it happens to coincide with an improvement in the arts of agriculture.

We learn from history and by observation that every agriculturist in every age and clime desires to have the use of a good deal of land; and that when he cannot get it freely, he will pay for it, if he has the means. If he thought that he would get as good results by applying all his capital and labour to a very small piece, he would not pay for any but a very small piece.

Land may be under-cultivated, and then extra capital and labour will give an increasing return until a maximum rate has been reached, after which it will diminish again.

When land that requires no clearing is to be had for nothing, everyone uses just that quantity which he thinks will give his capital and labour the largest return. His cultivation is "extensive," not "intensive." He does not aim at getting many bushels of corn from any one acre, for then he would cultivate only a few acres. His purpose is to get as large a total crop as possible with a given expenditure of seed and labour; and therefore he sows as many acres as he can manage to bring under a light cultivation. Of course he may go too far: he may spread his work over so large an area that he would gain by concentrating his capital and labour on a smaller space; and under these circumstances if he could get command over more capital and labour so as to apply more to each acre, the land would give him an *Increasing Return*; that is, an extra return larger in proportion than it gives to his present expenditure. But if he has made his calculations rightly, he is using just so much ground as will give him the highest return; and he would lose by concentrating his capital and labour on a smaller area. If he had command over more capital and labour and were to apply more to his present land, he would gain less than he would by taking up more land; he would get a *Diminishing Return*, that is, an extra return smaller in proportion than he gets

IV, III, 1. for the last applications of capital and labour that he now makes, provided of course that there is meanwhile no perceptible improvement in his agricultural skill. As his sons grow up they will have more capital and labour to apply to land; and in order to avoid obtaining a diminishing return, they will want to cultivate more land. But perhaps by this time all the neighbouring land is already taken up, and in order to get more they must buy it or pay a rent for the use of it, or migrate where they can get it for nothing.[1]

Were it otherwise every farmer would save most of his rent by applying all his capital and labour to a small part of his land.

This tendency to a diminishing return was the cause of Abraham's parting from Lot,[2] and of most of the migrations of which history tells. And wherever the right to cultivate land is much in request, we may be sure that the tendency to a diminishing return is in full operation. Were it not for this tendency every farmer could save nearly the whole of his rent by giving up all but a small piece of his land, and bestowing all his capital and labour on that. If all the capital and labour which he would in that case apply to it, gave as good a return in proportion as that which he now applies to it, he would get from that plot as large a produce as he now gets from his whole farm; and he would make a net gain of all his rent save that of the little plot that he retained.

It may be conceded that the ambition of farmers often leads them to take more land than they can properly manage: and indeed almost every great authority on agriculture, from Arthur Young downwards, has inveighed against this mistake. But when they tell a farmer that he would gain by applying his capital and labour to a smaller area, they do not necessarily mean that he would get a larger gross produce. It is sufficient for their argument that the saving in rent would more than counterbalance any probable diminution of the total returns that he got from the land. If a farmer pays a fourth of his produce as rent, he would gain by concentrating his capital and labour on less land, provided the extra capital and labour applied to each acre gave anything more than three-fourths as good a return in proportion, as he got from his earlier expenditure.

Improved methods may enable more

Again, it may be granted that much land, even in a country as advanced as England, is so unskilfully cultivated that it could be made to give more than double its present gross produce if twice

[1] Increasing return in the earlier stages arises partly from economy of organization, similar to that which gives an advantage to manufacture on a large scale. But it is also partly due to the fact that where land is very slightly cultivated the farmer's crops are apt to be smothered by nature's crops of weeds. The relation between Diminishing and Increasing Return is discussed further in the last chapter of this Book.

[2] "The land was not able to bear them, that they might dwell together: for their substance was great, so that they could not dwell together." Genesis xiii. 6.

the present capital and labour were applied to it skilfully. Very likely those are right who maintain that if all English farmers were as able, wise and energetic as the best are, they might profitably apply twice the capital and labour that is now applied. Assuming rent to be one-fourth of the present produce, they might get seven hundredweight of produce for every four that they now get: it is conceivable that with still more improved methods they might get eight hundredweight, or even more. But this does not prove that, *as things are*, further capital and labour could obtain from land an increasing return. The fact remains that, taking farmers as they are with the skill and energy which they actually have, we find as the result of universal observation that there is not open to them a short road to riches by giving up a great part of their land, by concentrating all their capital and labour on the remainder, and saving for their own pockets the rent of all but that remainder. The reason why they cannot do this is told in the law of diminishing return; that return being measured, as has already been said by its quantity, not its exchange value.

capital and labour to be profitably applied.

We may now state distinctly the limitations which were implied under the words "in general" in our provisional wording of the law. The law is a statement of a tendency which may indeed be held in check for a time by improvements in the arts of production and by the fitful course of the development of the full powers of the soil; but which must ultimately become irresistible if the demand for produce should increase without limit. Our final statement of the tendency may then be divided into two parts, thus:—

Final statement of the tendency to diminishing return.

Although an improvement in the arts of agriculture may raise the rate of return which land generally affords to any given amount of capital and labour; and although the capital and labour already applied to any piece of land may have been so inadequate for the development of its full powers, that some further expenditure on it even with the existing arts of agriculture would give a more than proportionate return; yet these conditions are rare in an old country: and, except when they are present, the application of increased capital and labour to land will add a less than proportionate amount to the produce raised, unless there be meanwhile an increase in the skill of the individual cultivator. Secondly, whatever may be the future developments of the arts of agriculture, a continued increase in the application of capital and labour to land must ultimately result in a diminution of the extra produce which can be obtained by a given extra amount of capital and labour.

§ 2. Making use of a term suggested by James Mill, we may

IV, III, 2.

A *dose* of capital and labour.

regard the capital and labour applied to land as consisting of equal successive *doses*.[1] As we have seen, the return to the first few doses may perhaps be small and a greater number of doses may get a larger proportionate return; the return to successive doses may even in exceptional cases alternately rise and fall. But our law states that sooner or later (it being always supposed that there is meanwhile no change in the arts of cultivation) a point will be reached after which all further doses will obtain a less proportionate return than the preceding doses. The dose is always a combined dose of labour and capital, whether it is applied by a peasant owner working unaided on his own land, or at the charges of a capitalist farmer who does no manual labour himself. But in the latter case the main body of the outlay presents itself in the form of money; and when discussing the business economy of farming in relation to English conditions, it is often convenient to consider the labour converted at its market value into a money equivalent, and to speak of doses of capital simply, rather than of doses of labour and capital.

Marginal dose, marginal return, margin of cultivation.

The dose which only just remunerates the cultivator may be said to be the *marginal dose*, and the return to it the *marginal return*. If there happens to be in the neighbourhood land that is cultivated but only just pays its expenses, and so gives no surplus for rent, we may suppose this dose applied to it. We can then say that the dose applied to it is applied to land on the *margin of cultivation*, and this way of speaking has the advantage of simplicity. But it is not necessary for the argument to suppose that there is any such land: what we want to fix our minds on is the return to the marginal dose; whether it happens to be applied to poor land or to rich does not matter; all that is necessary is that it should be the last dose which can profitably be applied to that land.[2]

The marginal dose is not necessarily the last in time.

When we speak of the marginal, or the "last" dose applied to the land, we do not mean the last in time, we mean that dose which is on the margin of profitable expenditure; that is, which is applied so as just to give the ordinary returns to the capital and labour of the cultivator, without affording any surplus. To take a concrete instance, we may suppose a farmer to be thinking of sending the hoers over a field once more; and after a little hesitation he decides that it is worth his while, but only just worth his while to do it. The dose of capital and labour spent on doing it, is then the last dose in our present sense, though there are many doses still to be applied

[1] As to this term see the Note at the end of the chapter.

[2] Ricardo was well aware of this: though he did not emphasize it enough. Those opponents of his doctrine who have supposed that it has no application to places where all the land pays a rent, have mistaken the nature of his argument.

in reaping the crop. Of course the return to this last dose cannot be separated from the others; but we ascribe to it all that part of the produce which we believe would not have been produced if the farmer had decided against the extra hoeing.[1] IV, III, 2.

Since the return to the dose on the margin of cultivation just remunerates the cultivator, it follows that he will be just remunerated for the whole of his capital and labour by as many times the marginal return as he has applied doses in all. Whatever he gets in excess of this is the *surplus produce* of the land. This surplus is retained by the cultivator if he owns the land himself.[2] *Surplus produce.*

It is important to note that this description of the nature of

[1] An illustration from recorded experiments may help to make clearer the notion of the return to a marginal dose of capital and labour. The Arkansas experimental station (see *The Times*, 18 Nov. 1889) reported that four plots of an acre each were treated exactly alike except in the matter of ploughing and harrowing, with the following result:—

Plot.	Cultivation.	Crop yields, bushels per acre.
1	Ploughed once	16
2	Ploughed once and harrowed once	18½
3	Ploughed twice and harrowed once	21⅔
4	Ploughed twice and harrowed twice	23¼

This would show that the dose of capital and labour applied in harrowing a second time an acre which had already been ploughed twice gave a return of $1\frac{7}{12}$ bushels. And if the value of these bushels, after allowing for expenses of harvesting, etc. *just* replaced that dose with profits, then that dose was a *marginal* one; even though it was not the last in point of time, since those spent on harvesting must needs come later.

[2] Let us seek a graphical illustration. It is to be remembered that graphical illustrations are not proofs. They are merely pictures corresponding very roughly to the main conditions of certain real problems. They obtain clearness of outline, by leaving out of account many considerations which vary from one practical problem to another, and of which the farmer must take full account in his own special case. If on any given field there were expended a capital of £50, a certain amount of produce would be raised from it: a certain amount larger than the former would be raised if there were expended on it a capital of £51. The difference between these two amounts may be regarded as the produce due to the fifty-first pound; and if we suppose the capital to be applied in successive doses of £1 each we may speak of this difference as the produce due to the fifty-first dose. Let the doses be represented in order by successive equal divisions of the line *OD*. Let there now be drawn from the division of this line representing the fifty-first dose *M*, a line *MP* at right angles to *OD*, in thickness equal to the length of one of the divisions, and such that its length represents the amount of the produce due to the fifty-first dose. Suppose this done for each separate division up to that corresponding to the last dose which it is found profitable to put on the land. Let this last dose be the 110th at *D*, and *DC* the corresponding return that only just remunerates the farmer. The extremities of such lines will lie on a curve *APC*. The gross produce will be represented by the sum of these lines: *i.e.*, since the thickness of each line is equal to the length of the division on which it stands, by the area *ODCA*. Let *CGH* be drawn parallel to *DO*, cutting *PM* in *G*; then *MG* is equal to *CD*; and since *DC* just remunerates the farmer for one dose, *MG* will just remunerate him for another: and so for all the portions of the thick vertical lines cut off between *OD* and *HC*. Therefore the sum of these, that is, the area *ODCH*, represents the share of the produce that is required to remunerate him; while the remainder, *AHGCPA*, is the surplus produce, which under certain conditions becomes the rent.

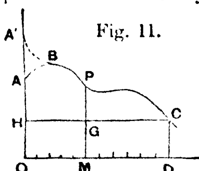


Fig. 11.

IV, III, 3.

This description of surplus produce is not a theory of rent.

surplus produce is *not* a theory of rent: we shall not be ready for that till a much later stage. All that can be said here, is that this surplus produce may, *under certain conditions*, become the rent which the owner of the land can exact from the tenant for its use. But, as we shall see hereafter, the full rent of a farm in an old country is made up of three elements: the first being due to the value of the soil as it was made by nature; the second to improvements made in it by man; and the third, which is often the most important of all, to the growth of a dense and rich population, and to facilities of communication by public roads, railroads, etc.

Ricardo confined his attention to the circumstances of an old country.

It is to be noted also that in an old country it is impossible to discover what was the original state of the land before it was first cultivated. The results of some of man's work are for good and evil fixed in the land, and cannot be distinguished from those of nature's work: the line of division is blurred, and must be drawn more or less arbitrarily. But for most purposes it is best to regard the first difficulties of coping with nature as pretty well conquered before we begin to reckon the farmer's cultivation. Thus the returns that we count as due to the first doses of capital and labour are generally the largest of all, and the tendency of the return to diminish shows itself at once. Having English agriculture chiefly in view, we may fairly take, as Ricardo did, this as the typical case.[1]

The elasticity of nature's return to

§ 3. Let us next inquire on what depends the *rate* of diminution or of increase of the returns to successive doses of capital and labour. We have seen that there are great variations in the share of the

[1] That is, we may substitute (fig. 11) the dotted line BA' for BA and regard $A'BPC$ as the typical curve for the return to capital and labour applied in English agriculture. No doubt crops of wheat and some other annuals cannot be raised at all without some considerable labour. But natural grasses which sow themselves will yield a good return of rough cattle to scarcely any labour.

It has already been noticed (Book III. ch. III. § 1), the law of diminishing return bears a close analogy to the law of demand. The return which land gives to a dose of capital and labour may be regarded as the price which land offers for that dose. Land's return to capital and labour is, so to speak, her effective demand for them: her return to any dose is her demand price for that dose, and the list of returns that she will give to successive doses may thus be regarded as her demand schedule: but to avoid confusion we shall call it her "Return Schedule." Corresponding to the case of the land in the text is that of a man who may be willing to pay a larger proportionate price for a paper that would cover the whole of the walls of his room than for one that would go only half way; and then his demand schedule would at one stage show an increase and not a diminution of demand price for an increased quantity. But in the aggregate demand of many individuals these unevennesses destroy one another; so that the aggregate demand schedule of a group of people always shows the demand price as falling steadily with every increase in the amount offered. In the same way, by grouping together many pieces of land we might obtain a return schedule that would show a constant diminution for every increase of capital and labour applied. But it is more easy to ascertain, and in some ways more important to take note of, the variations of individual demand in the case of plots of land than in the case of people. And therefore our typical return schedule is not drawn out so as to show as even and uniform a diminution of return as our typical demand schedule does of demand price.

produce which man may claim as the additional result of his own work over what unaided nature would have produced; and that man's share is much larger with some crops and soils and methods of cultivation than with others. Thus broadly speaking it increases as we pass from forest to pasture land, from pasture to arable, and from plough land to spade land; and this is because the rate of diminution of the return is as a rule greatest in forests, rather less in pasture, still less in arable land, and least of all in spade land.

IV, III, 3.

Capital and labour varies with soil and crops.

There is no absolute measure of the richness or fertility of land. Even if there be no change in the arts of production, a mere increase in the demand for produce may invert the order in which two adjacent pieces of land rank as regards fertility. The one which gives the smaller produce, when both are uncultivated, or when the cultivation of both is equally slight, may rise above the other and justly rank as the more fertile when both are cultivated with equal thoroughness. In other words, many of those lands which are the least fertile when cultivation is merely extensive, become among the most fertile when cultivation is intensive. For instance, self-drained pasture land may give a return large in proportion to a very slight expenditure of capital and labour, but a rapidly diminishing return to further expenditure: as population increases it may gradually become profitable to break up some of the pasture and introduce a mixed cultivation of roots and grains and grasses; and then the return to further doses of capital and labour may diminish less quickly.

The relative fertility of two fields may change with circumstances.

Other land makes poor pasture, but will give more or less liberal returns to a great deal of capital and labour applied in tilling and in manuring it; its returns to the early doses are not very high, but they diminish slowly.

Again, other land is marshy. It may, as did the fens of east England, produce little but osiers and wild fowl. Or, as is the case in many tropical districts, it may be prolific of vegetation, but so shrouded with malaria that it is difficult for man to live there, and still more to work there. In such cases the returns to capital and labour are at first small, but as drainage progresses, they increase; afterwards perhaps they again fall off.[1]

[1] This case may be represented by diagrams. If the produce rises in real value in the ratio of OH' to OH (so that the amount required to remunerate the farmer for a dose of capital and labour has fallen from OH to OH'), the surplus produce rises only to $AH'C'$, which is not very much greater than its old amount AHC, fig. 12, representing the first case. The second case is represented in fig. 13, where a similar change in the price of produce makes the new surplus produce $AH'C'$ about three times as large as the old surplus, AHC; and the third in fig. 14. The earliest doses of capital and labour applied to the land give so poor a return, that it would not be worth while to apply them unless it were intended to carry the cultivation further.

IV, III, 3. But when improvements of this kind have once been made, the capital invested in the soil cannot be removed; the early history of the cultivation is not repeated; and the produce due to further applications of capital and labour shows a tendency to diminishing return.[1]

Similar though less conspicuous changes may occur on land already well cultivated. For instance, without being marshy, it may be in need of a little drainage to take off the stagnant water from it, and to enable fresh water and air to stream through it. Or the subsoil may happen to be naturally richer than the soil at the surface: or again, though not itself rich, it may have just those properties in which the surface soil is deficient, and then a thorough system of deep steam-ploughing may permanently change the character of the land.

Thus we need not suppose that when the return to extra capital and labour has begun to diminish, it will always continue to do so. Improvements in the arts of production may, it has always been understood, raise generally the return which can be got by any amount of capital and labour; but this is not what is meant here. The point is that, independently of any increase in his knowledge, and using only those methods with which he has long been familiar, a farmer finding extra capital and labour at his command, may

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But later doses give an increasing return which culminates at P, and afterwards diminishes. If the price to be got for produce is so low that an amount OH'' is required to remunerate the cultivator for a dose of capital and labour, it will then be only just profitable to cultivate the land. For then cultivation will be carried as far as D''; there will be a deficit on the earlier doses represented by the area $H''AE''$, and a surplus on the later doses represented by the area $E''PC''$: and as these two

Fig. 12.

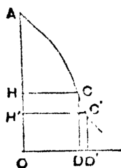


Fig. 13.

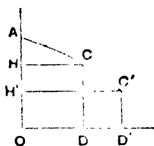
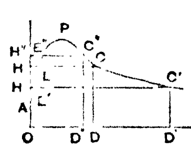


Fig. 14.



are about equal, the cultivation of the land so far will only just pay its way. But if the price of produce rises till OH is sufficient to remunerate the cultivator for a dose of capital and labour, the deficit on the earlier doses will sink to HAE, and the surplus on the later doses will rise to EPC: the net surplus (the true rent in case the land is hired out) will be the excess of EPC over HAE. Should the price rise further till OH' is sufficient to remunerate the cultivator for a dose of capital and labour, this net surplus will rise to the very large amount represented by the excess of $E'PC'$ over $H'AE'$.

[1] In such a case as this the earlier doses are pretty sure to be sunk in the land; and the actual rent paid, if the land is hired out, will then include profits on them in addition to the surplus produce or true rent thus shown. Provision can easily be made in the diagrams for the returns due to the landlord's capital.

sometimes obtain an increasing return even at a late stage in his cultivation.[1]

It has been well said that as the strength of a chain is that of its weakest link, so fertility is limited by that element in which it is most deficient. Those who are in a hurry, will reject a chain which has one or two very weak links, however strong the rest may be: and prefer to it a much slighter chain that has no flaw. But if there is heavy work to be done, and they have time to make repairs, they will set the larger chain in order, and then its strength will exceed that of the other. In this we find the explanation of much that is apparently strange in agricultural history.

Early settlers often rightly avoid the land which an English farmer would be apt to select.

The first settlers in a new country generally avoid land which does not lend itself to immediate cultivation. They are often repelled by the very luxuriance of natural vegetation, if it happens to be of a kind that they do not want. They do not care to plough land that is at all heavy, however rich it might become if thoroughly worked. They will have nothing to do with water-logged land. They generally select light land which can easily be worked with a double plough, and then they sow their seed broadly, so that the plants when they grow up may have plenty of light and air, and may collect their food from a wide area.

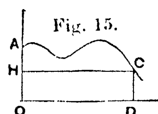
When America was first settled, many farming operations that are now done by horse machinery were still done by hand; and though now the farmers have a strong preference for flat prairie land, free from stumps and stones, where their machines can work easily and without risk, they had then no great objection to a hill-side. Their crops were light in proportion to their acreage, but heavy in proportion to the capital and labour expended in raising them.

Fertility is not absolute but relative to place and time.

We cannot then call one piece of land more fertile than another until we know something about the skill and enterprise of its cultivators, and the amount of capital and labour at their disposal; and till we know whether the demand for produce is such as to make intensive cultivation profitable with the resources at their disposal. If it is, those lands will be the most fertile which give the highest average returns to a large expenditure of capital and labour; but if not, those will be the most fertile which give the best returns to the first few doses. The term fertility has no meaning except

[1] Of course his return may diminish and then increase and then diminish again; and yet again increase when he is in a position to carry out some further extensive change, as was represented by fig. 11. But more extreme instances, of the kind represented by fig. 15, are not very rare.

Fig. 15.



with reference to the special circumstances of a particular time and place.

But even when so limited there is some uncertainty as to the usage of the term. Sometimes attention is directed chiefly to the power which land has of giving adequate returns to intensive cultivation and so bearing a large total produce per acre; and sometimes to its power of yielding a large surplus produce or rent, even though its gross produce is not very large: thus in England now rich arable land is very fertile in the former sense, rich meadow in the latter. For many purposes it does not matter which of these senses of the term is understood: in the few cases in which it does matter, an interpretation clause must be supplied in the context.[1]

Other causes of change in the relative values of different pieces of land.

§ **4.** But further, the order of fertility of different soils is liable to be changed by changes in the methods of cultivation and in the relative values of different crops. Thus when at the end of last century Mr. Coke showed how to grow wheat well on light soils by preparing the way with clover, they rose relatively to clay soils; and now though they are still sometimes called from old custom "poor," some of them have a higher value, and are really more fertile, than much of the land that used to be carefully cultivated while they were left in a state of nature.

Again, the increasing demand in central Europe for wood to be used as fuel and for building purposes, has raised the value of the pine-covered mountain slopes relatively to almost every other kind of land. But in England this rise has been prevented by the substitution of coal for wood as fuel, and of iron for wood as a material for shipbuilding, and lastly by England's special facilities for importing wood. Again, the cultivation of rice and jute often gives a very high value to lands that are too much covered with water to bear most other crops. And again, since the repeal of the Corn Laws the prices of meat and dairy produce have risen in England relatively to that of corn. Those arable soils that would grow rich forage crops in rotation with corn, rose relatively to the cold clay soils; and permanent pasture recovered part of that great fall in

[1] If the price of produce is such that an amount of it OH (figs. 12, 13, 14) is required to pay the cultivator for one dose of capital and labour, the cultivation will be carried as far as D; and the produce raised, $AODC$, will be greatest in fig. 12, next greatest in fig. 13, and least in fig. 14. But if the demand for agricultural produce so rises that OH' is enough to repay the cultivator for a dose, the cultivation will be carried as far as D', and the produce raised will be $AOD'C'$, which is greatest in fig. 14, next in fig. 13, and least in fig. 12. The contrast would have been even stronger if we had considered the surplus produce which remains after deducting what is sufficient to repay the cultivator, and which becomes under some conditions the rent of the land. For this is AHC in figs. 12 and 13 in the first case and $AH'C'$ in the second; while in fig. 14 it is in the first case the excess of $AODCPA$ over $ODCH$, *i.e.* the excess of PEC over AHE; and in the second case the excess of $PE'C'$ over $AH'E'$.

value relatively to arable land, which had resulted from the growth of population.[1]

Poorer soils rise in relative value as the pressure of population increases.

Independently of any change in the suitability of the prevailing crops and methods of cultivation for special soils, there is a constant tendency towards equality in the value of different soils. In the absence of any special cause to the contrary, the growth of population and wealth will make the poorer soils gain on the richer. Land that was at one time entirely neglected is made by much labour to raise rich crops; its annual income of light and heat and air, is probably as good as those of richer soils: while its faults can be much lessened by labour.[2]

There is no absolute standard of good cultivation.

As there is no absolute standard for fertility, so there is none of good cultivation. The best cultivation in the richest parts of the Channel Islands, for instance, involves a lavish expenditure of capital and labour on each acre: for they are near good markets and have a monopoly of an equable and early climate. If left to nature the land would not be very fertile, for though it has many virtues, it has two weak links (being deficient in phosphoric acid and potash). But, partly by the aid of the abundant seaweed on its shores, these links can be strengthened, and the chain thus becomes exceptionally strong. Intense, or as it is ordinarily called in England "good" cultivation, will thus raise £100 worth of early potatoes

[1] Rogers (*Six Centuries of Work and Wages*, p. 73) calculates that rich meadow had about the same value, estimated in grain, five or six centuries ago as it has now; but that the value of arable land, similarly estimated, has increased about fivefold in the same time. This is partly due to the great importance of hay at a time when roots and other modern kinds of winter food for cattle were unknown.

[2] Thus we may compare two pieces of land represented in figs. 16 and 17, with regard to which the law of diminishing returns acts in a similar way, so that their produce curves have similar shapes, but the former has a higher fertility than the other for all degrees of intensity of cultivation. The value of the land may generally be represented by its surplus produce or rent, which is in each case represented by *AHC* when *OH* is required to repay a dose of capital and labour; and by *AH′C′* when the growth of numbers and wealth have made *OH′* sufficient. It is clear that *AH′C′* in fig. 17 bears a more favourable comparison with *AH′C′* in fig. 16 than does *AHC* in fig. 17 with *AHC* in fig. 16. In the same way, though not to the same extent, the total produce *AOD′C′* in fig. 17 bears a more favourable comparison with *AOD′C′* in fig. 16, than does *AODC* in fig. 17 with *AODC* in fig. 16. (It is ingeniously argued in Wicksteed's *Coordinates of Laws of Distribution*, pp. 51, 2 that rent may be negative. Of course taxes may absorb rent: but land which will not reward the plough will grow trees or rough grass. See above, pp. 130, 1.)

Fig. 16.

Fig. 17.

Leroy Beaulieu (*Répartition des Richesses*, chap. II.) has collected several facts illustrating this tendency of poor lands to rise in value relatively to rich. He quotes the following figures, showing the rental in francs per hectare (2½ acres) of five classes of land in several communes of the Départements de l'Eure et de l'Oise in 1829 and 1852 respectively:—

	Class I.	Class II.	Class III.	Class IV.	Class V.
A.D. 1829	58	48	34	20	8
A.D. 1852	80	78	60	50	40

IV, III, 5. from a single acre. But an equal expenditure per acre by the farmer in Western America would ruin him; relatively to his circumstances it would not be good, but bad cultivation.

Ricardo's wording of the law was inaccurate.

§ 5. Ricardo's wording of the law of diminishing return was inexact. It is however probable that the inaccuracy was due not to careless thinking but only to careless writing. In any case he would have been justified in thinking that these conditions were not of great importance in the peculiar circumstances of England at the time at which he wrote, and for the special purposes of the particular practical problems he had in view. Of course he could not anticipate the great series of inventions which were about to open up new sources of supply, and, with the aid of free trade, to revolutionize English agriculture; but the agricultural history of England and other countries might have led him to lay greater stress on the probability of a change.[1]

Ricardo said that the richest lands were cultivated first; this is true in the sense in which he meant it:

He stated that the first settlers in a new country invariably chose the richest lands, and that as population increased, poorer and poorer soils were gradually brought under cultivation, speaking carelessly as though there were an absolute standard of fertility. But as we have already seen, where land is free, everyone chooses that which is best adapted for his own purpose, and that which will give him, all things considered, the best return for his capital and labour. He looks out, therefore, for land that can be cultivated at once, and passes by land that has any weak links in the chain of its elements of fertility, however strong it may be in some other links. But besides having to avoid malaria, he must think of his communication with his markets and the base of his resources; and in some cases the need for security against the attacks of enemies and wild beasts outweighs all other considerations. It is therefore not to be expected that the lands which were first chosen, should turn out always to be those which ultimately come to be regarded as the most fertile. Ricardo did not consider this point, and thus laid himself open to attacks by Carey and others, which, though for the greater part based on a misinterpretation of his position, have yet some solid substance in them.

but it is apt to be misunderstood, as it

The fact that, in new countries, soils which an English farmer would regard as poor, are sometimes cultivated before neighbouring soils which he would regard as rich, is not inconsistent, as some

[1] As Roscher says (*Political Economy*, Sect. CLV.), "In judging Ricardo, it must not be forgotten that it was not his intention to write a text-book on the science of Political Economy, but only to communicate to those versed in it the result of his researches in as brief a manner as possible. Hence he writes so frequently making certain assumptions, and his words are to be extended to other cases only after due consideration, or rather re-written to suit the changed case."

foreign writers have supposed, with the general tenor of Ricardo's doctrines. Its practical importance is in relation to the conditions under which the growth of population tends to cause increased pressure on the means of subsistence: it shifts the centre of interest from the mere amount of the farmer's produce to its exchange *value* in terms of the things which the industrial population in his neighbourhood will offer for it.[1]

IV, III, 6.

was by Carey.

§ 6. Ricardo, and the economists of his time generally were too hasty in deducing this inference from the law of diminishing return; and they did not allow enough for the increase of strength that comes from organization. But in fact every farmer is aided by the presence of neighbours whether agriculturists or townspeople.[2] Even if most of them are engaged like himself in agriculture, they gradually supply him with good roads, and other means of communication: they give him a market in which he can buy at reasonable terms what he wants, necessaries, comforts and luxuries for himself and his family, and all the various requisites for his farm work: they surround him with knowledge: medical aid, instruction and amusement are brought to his door; his mind becomes wider, and his efficiency is in many ways increased. And if the neighbouring market town expands into a large industrial centre, his gain is much greater. All his produce is worth more; some things which he used to throw away fetch a good price. He finds new openings in dairy farming and market gardening, and with a larger range of produce he makes use of rotations that keep his land always active without denuding it of any one of the elements that are necessary for its fertility.

But Carey has shown that Ricardo underrated the indirect advantages which a dense population offers to agriculture.

[1] Carey claims to have proved that "in every quarter of the world cultivation has commenced on the sides of the hills where the soil was poorest, and where the natural advantages of situation were the least. With the growth of wealth and population, men have been seen descending from the high lands bounding the valley on either side, and coming together at its feet." (*Principles of Social Science*, chap. IV. § 4.) He has even argued that whenever a thickly peopled country is laid waste, "whenever population, wealth, and the power of association decline, it is the rich soil that is abandoned by men who fly again to the poor ones" (*Ib.* ch. V. § 3); the rich soils being rendered difficult and dangerous by the rapid growth of jungles which harbour wild beasts and banditti, and perhaps by malaria. The experience of more recent settlers in South Africa and elsewhere does not however generally support his conclusions, which are indeed based largely on facts relating to warm countries. But much of the apparent attractiveness of tropical countries is delusive: they would give a very rich return to hard work: but hard work in them is impossible at present, though some change in this respect may be made by the progress of medical and especially bacteriological science. A cool refreshing breeze is as much a necessary of vigorous life as food itself. Land that offers plenty of food but whose climate destroys energy, is not more productive of the raw material of human wellbeing, than land that supplies less food but has an invigorating climate.

The late Duke of Argyll described the influence of insecurity and poverty in compelling the cultivation of the hills before that of the valleys of the Highlands was feasible, *Scotland as it is and was*, II. 74, 5.

[2] In a new country an important form of this assistance is to enable him to venture on rich land that he would have otherwise shunned, through fear of enemies or of malaria.

IV, III, 7.

Further, as we shall see later on, an increase of population tends to develop the organization of trade and industry; and therefore the law of diminishing return does not apply to the total capital and labour spent in a district as sharply as to that on a single farm. Even when cultivation has reached a stage after which each successive dose applied to a field would get a less return than the preceding dose, it may be possible for an increase in the population to cause a more than proportional increase in the means of subsistence. It is true that the evil day is only deferred: but it is deferred. The growth of population, if not checked by other causes, must ultimately be checked by the difficulty of obtaining raw produce; but in spite of the law of diminishing return, the pressure of population on the means of subsistence may be restrained for a long time to come by the opening up of new fields of supply, by the cheapening of railway and steamship communication, and by the growth of organization and knowledge.

The value of fresh air, light, water, and beautiful scenery.

Against this must be set the growing difficulty of getting fresh air and light, and in some cases fresh water, in densely peopled places. The natural beauties of a place of fashionable resort have a direct money value which cannot be overlooked; but it requires some effort to realize the true value to men, women and children of being able to stroll amid beautiful and varied scenery.

The fertility of fisheries.

§ 7. As has already been said the land in economic phrase includes rivers and the sea. In river-fisheries, the extra return to additional applications of capital and labour shows a rapid diminution. As to the sea, opinions differ. Its volume is vast, and fish are very prolific; and some think that a practically unlimited supply can be drawn from the sea by man without appreciably affecting the numbers that remain there; or in other words, that the law of diminishing return scarcely applies at all to sea-fisheries: while others think that experience shows a falling-off in the productiveness of those fisheries that have been vigorously worked, especially by steam trawlers. The question is important, for the future population of the world will be appreciably affected as regards both quantity and quality, by the available supply of fish.

A mine does not give a diminishing return in the same sense as a farm does.

The produce of mines again, among which may be reckoned quarries and brickfields, is said to conform to the law of diminishing return; but this statement is misleading. It is true that we find continually increasing difficulty in obtaining a further supply of minerals, except in so far as we obtain increased power over nature's stores through improvements in the arts of mining, and through better knowledge of the contents of the earth's crust; and there is

no doubt that, other things being equal, the continued application of capital and labour to mines will result in a diminishing rate of yield. But this yield is not a *net* yield, like the return of which we speak in the law of diminishing return. That return is part of a constantly recurring income, while the produce of mines is merely a giving up of their stored-up treasures. The produce of the field is something other than the soil; for the field, properly cultivated, retains its fertility. But the produce of the mine is part of the mine itself. IV, III. 7.

To put the same thing in another way, the supply of agricultural produce and of fish is a perennial stream; mines are as it were nature's reservoir. The more nearly a reservoir is exhausted, the greater is the labour of pumping from it; but if one man could pump it out in ten days, ten men could pump it out in one day: and when once empty, it would yield no more. So the mines that are being opened this year might just as easily have been opened many years ago: if the plans had been properly laid in advance, and the requisite specialized capital and skill got ready for the work, ten years' supply of coal might have been raised in one year without any increased difficulty; and when a vein had once given up its treasure, it could produce no more. This difference is illustrated by the fact that the rent of a mine is calculated on a different principle from that of a farm. The farmer contracts to give back the land as rich as he found it: a mining company cannot do this; and while the farmer's rent is reckoned by the year, mining rent consists chiefly of "royalties" which are levied in proportion to the stores that are taken out of nature's storehouse.[1]

But building land does give a diminishing return of convenience as increased capital is spent on it.

On the other hand, services which land renders to man, in giving him space and light and air in which to live and work, do conform strictly to the law of diminishing return. It is advantageous to apply a constantly increasing capital to land that has any special advantages of situation, natural or acquired. Buildings tower up towards the sky; natural light and ventilation are supplemented by artificial means, and the steam lift reduces the disadvantages of the highest floors; and for this expenditure there is a return of extra convenience, but it is a diminishing return. However great the ground rent may be, a limit is at last reached after which it is better

[1] As Ricardo says (*Principles*, chap. II.): "The compensation given (by the lessee) for the mine or quarry is paid for the value of the coal or stone which can be removed from them, and has no connection with the original or indestructible powers of the land." But both he and others seem sometimes to lose sight of these distinctions in discussing the law of diminishing return in its application to mines. Especially is this the case in Ricardo's criticism of Adam Smith's theory of rent (*Principles*, chap. XXIV.).

IV, III, 8. to pay more ground rent for a larger area than to go on piling up storey on storey any further; just as the farmer finds that at last a stage is reached at which more intensive cultivation will not pay its expenses, and it is better to pay more rent for extra land, than to face the diminution in the return which he would get by applying more capital and labour to his old land.[1] From this it results that the theory of ground rents is substantially the same as that of farm rents. This and similar facts will presently enable us to simplify and extend the theory of value as given by Ricardo and Mill.

The elasticity of the notions of diminishing return and rent fore-shadowed.

And what is true of building land is true of many other things. If a manufacturer has, say, three planing machines there is a certain amount of work which he can get out of them easily. If he wants to get more work from them he must laboriously economize every minute of their time during the ordinary hours, and perhaps work overtime. Thus after they are once well employed, every successive application of effort to them bring him a diminishing return. At last the net return is so small that he finds it cheaper to buy a fourth machine than to force so much work out of his old machines: just as a farmer who has already cultivated his land highly finds it cheaper to take in more land than to force more produce from his present land. Indeed there are points of view from which the income derived from machinery partakes of the nature of rent: as will be shown in Book V.

NOTE ON THE LAW OF DIMINISHING RETURN.

The elasticity of the notion of diminishing return further considered.

§ 8. The elasticity of the notion of diminishing return cannot be fully considered here; for it is but an important detail of that large general problem of the economic distribution of resources in the investment of capital, which is the pivot of the main argument of Book V and indeed of a great part of the whole Volume. But a few words about it seem now to be called for in this place, because much stress has recently been laid on it under the able and suggestive leadership of Professor Carver.[2]

If a manufacturer expends an inappropriately large amount of his resources on machinery, so that a considerable part of it is habitually idle; or on buildings, so that a considerable part of his space is not well filled; or on his office staff, so that he has to employ some of them on work that it is not worth what it costs; then his excessive expenditure in that particular direction will not be as remunerative as his previous expenditure had been: and it may be

[1] Of course the return to capital spent in building increases for the earlier doses. Even where land can be had for almost nothing, it is cheaper to build houses two stories high than one; and hitherto it has been thought cheapest to build factories about four stories high. But a belief is growing up in America, that where land is not very dear factories should be only two stories high, partly in order to avoid the evil effects of vibration, and of the expensive foundations and walls required to prevent it in a high building: that is, it is found that the return of accommodation diminishes perceptibly after the capital and labour required to raise two stories have been spent on the land.

[2] See also the writings of Professors Bullock and Landry.

said to yield him a "diminishing return." But this use of the phrase, though strictly correct, is apt to mislead unless used with caution. For when the tendency to a diminishing return from increased labour and capital applied to land is regarded as a special instance of the general tendency to diminishing return from any agent of production, applied in excessive proportion to the other agents, one is apt to take it for granted that the supply of the other factors can be increased. That is to say, one is apt to deny the existence of that condition—the fixedness of the whole stock of cultivable land in an old country—which was the main foundation of those great classical discussions of the law of diminishing return, which we have just been considering. Even the individual farmer may not always be able to get an additional ten or fifty acres adjoining his own farm, just when he wants them, save at a prohibitive price. And in that respect land differs from most other agents of production even from the individual point of view. This difference may indeed be regarded as of little account in regard to the individual farmer. But from the social point of view, from the point of view of the following chapters on population it is vital. Let us look into this.

A diminishing return results generally from an inappropriate apportionment of appliances for production.

In every phase of any branch of production there is some distribution of resources between various expenditures which yields a better result than any other. The abler the man in control of any business, the nearer he will approach to the ideally perfect distribution; just as the abler the primitive housewife in control of a family's stock of wool, the nearer she will approach to an ideal distribution of wool between the different needs of the family.[1]

If his business extends he will extend his uses of each requisite of production in *due* proportion; but not, as has sometimes been said, proportionately; for instance the proportion of manual work to machine work which would be appropriate in a small furniture factory would not be appropriate in a large one. If he makes the best possible apportionment of his resources, he gets the greatest (marginal) return from each appliance of production of which his business is capable. If he uses too much of any one he gets a diminishing return from it; because the others are not able to back it up properly. And this diminishing return is analogous to that which a farmer obtains, when he cultivates land so intensively that he obtains a diminishing return from it. If the farmer can get more land at the same rent as he has paid for the old, he will take more land, or else lie open to the imputation of being a bad business man: and this illustrates the fact that land from the point of view of the individual cultivator is simply one form of capital.

But the national agriculture of a densely peopled country is dominated by the fixity of the total stock of

But when the older economists spoke of the Law of Diminishing Return they were looking at the problems of agriculture not only from the point of view of the individual cultivator but also from that of the nation as a whole. Now if the nation *as a whole* finds its stock of planing machines or ploughs inappropriately large or inappropriately small, it can redistribute its resources. It can obtain more of that in which it is deficient, while gradually lessening its stock of such things as are superabundant: *but it cannot do that in regard to land*: it can cultivate its land more intensively, but it cannot get any more. And for that reason the older economists rightly insisted that, from the social point of view, land is not on exactly the same footing as those implements of production which man can increase without limit.

[1] In this he will make large use of what is called below the "Substitution" of more for less appropriate means. Discussions bearing directly on this paragraph will be found in III. v. 1—3: IV. vii. 8; and xiii. 2: V. iii. 3; iv. 1—4; v. 6—8; viii. 1—5; x. 3; VI. i. 7; and ii. 5.

The tendencies of diminishing utility and of diminishing return have their roots, the one in qualities of human nature, the other in the technical conditions of industry. But the distributions of resources, to which they point, are governed by exactly similar laws. In mathematical phrase, the problems in *maxima* and *minima* to which they give rise are expressed by the same general equations; as may be seen by reference to Mathematical Note XIV.

IV., III, 8.

one of the chief appliances.

No doubt in a new country where there is an abundance of rich land not yet brought under cultivation, this fixedness of the total stock of land is not operative. American economists often speak of the value, or rent, of land as varying with the land's distance from good markets, rather than with its fertility; because even now there is a great deal of rich land in their country which is not fully cultivated. And in like manner they lay but little stress on the fact that the diminishing return to labour and capital in general applied to the land by discreet farmers, in such a country as England, is not exactly on the same footing as the diminishing return to an inappropriate investment of their resources by indiscreet farmers or manufacturers in a disproportionately large number of ploughs or planing machines.

Difficulty of measuring off a dose of labour and capital,

It is true that when the tendency to diminishing return is generalized, the return is apt to be expressed in terms of value, and not of quantity. It must however be conceded that the older method of measuring return in terms of quantity often jostled against the difficulty of rightly interpreting a dose of labour and capital without the aid of a money measure: and that, though helpful for a broad preliminary survey, it cannot be carried very far.

But even the recourse to money fails us, if we want to bring to a common standard the productiveness of lands in distant times or places; and we must then fall back on rough, and more or less arbitrary modes of measurement, which make no aim at numerical precision, but will yet suffice for the broader purposes of history. We have to take account of the facts that there are great variations in the relative amounts of labour and capital in a dose: and that interest on capital is generally a much less important item in backward than in advanced stages of agriculture, in spite of the fact that the rate of interest is generally much lower in the latter. For most purposes it is probably best to take as a common standard a day's unskilled labour of given efficiency: we thus regard the dose as made up of so much labour of different kinds, and such charges for the use and replacement of capital, as will together make up the value of, say, ten days' such labour; the relative proportions of these elements and their several values in terms of such labour being fixed according to the special circumstances of each problem.[1]

and of reducing various produce to a common unit.

A similar difficulty is found in comparing the returns obtained by labour and capital applied under different circumstances. So long as the crops are of the same kind, the quantity of one return can be measured off against that of another: but, when they are of different kinds, they cannot be compared till they are reduced to a common measure of value. When, for instance, it is said that land would give better returns to the capital and labour expended on it with one crop or rotation of crops than with another, the statement must be understood to hold only the basis of the prices at the time. In such a case we must take the whole period of rotation together, assuming the land to be in the same condition at the beginning and the end of the rotation; and counting on the one hand all the labour and capital applied during the whole period, and on the other the aggregate returns of all the crops.

Different methods of book-keeping may class the same thing as capital or produce; but each must be consistent with itself.

It must be remembered that the return due to a dose of labour and capital is not here taken to include the value of the capital itself. For instance, if part of the capital on a farm consists of two-year-old oxen, then the returns to a year's labour and capital will include not the full weight of these oxen at the end of the year, but only the addition that has been made to it during the year. Again, when a farmer is said to work with a capital of £10 to the acre, this includes the value of everything that he has on the farm; but the total volume of the doses of labour and capital applied to a farm during, say, a year, does not include the whole value of the fixed capital, such as machinery and horses, but only the value of their use after allowing for interest, deprecia-

[1] The labour-part of the dose is of course current agricultural labour; the capital-part is itself also the product of labour in past times rendered by workers of many kinds and degrees, accompanied by "waiting."

tion and repairs; though it does include the whole value of the circulating capital, such as seed. IV, III, 8.

The above is the method of measuring capital generally adopted, and it is to be taken for granted if nothing is said to the contrary; but another method is more suitable occasionally. Sometimes it is convenient to speak as though all the capital applied were circulating capital applied at the beginning of the year or during it: and in that case everything that is on the farm at the end of the year is part of the produce. Thus, young cattle are regarded as a sort of raw material which is worked up in the course of time into fat cattle ready for the butcher. The farm implements may even be treated in the same way, their value at the beginning of the year being taken as so much circulating capital applied to the farm, and at the end of the year as so much produce. This plan enables us to avoid a good deal of repetition of conditioning clauses as to depreciation, etc., and to save the use of words in many ways. It is often the best plan for general reasonings of an abstract character, particularly if they are expressed in a mathematical form.

The law of diminishing return must have occupied thoughtful men in every densely peopled country. It was first stated clearly by Turgot (*Œuvres*, ed. Daire, I. pp. 420, 1), as Prof. Cannan has shown; and its chief applications were developed by Ricardo.

CHAPTER IV

THE GROWTH OF POPULATION

IV, IV, 1.

Population and production.

§ 1. THE production of wealth is but a means to the sustenance of man; to the satisfaction of his wants; and to the development of his activities, physical, mental, and moral. But man himself is the chief means of the production of that wealth of which he is the ultimate aim:[1] and this and the two following chapters will be given to some study of the supply of labour; *i.e.* of the growth of population in numbers, in strength, in knowledge, and in character.

The growth of numbers among animals is governed by present conditions; among men it is affected by traditions of the past and forecasts of the future.

In the animal and vegetable world the growth of numbers is governed by the tendency of individuals to propagate their species on the one hand, and on the other hand by the struggle for life which thins out the young before they arrive at maturity. In the human race alone the conflict of these two opposing forces is complicated by other influences. On the one hand regard for the future induces many individuals to control their natural impulses; sometimes with the purpose of worthily discharging their duties as parents; sometimes, as for instance at Rome under the Empire, for mean motives. And on the other hand society exercises pressure on the individual by religious, moral and legal sanctions, sometimes with the object of quickening, and sometimes with that of retarding, the growth of population.

The problems of population are older than civilization.

The study of the growth of population is often spoken of as though it were a modern one. But in a more or less vague form it has occupied the attention of thoughtful men in all ages of the world. To its influence, often unavowed, sometimes not even clearly recognized, we can trace a great part of the rules, customs and ceremonies that have been enjoined in the Eastern and Western world by law-givers, by moralists, and those nameless thinkers, whose far-seeing wisdom has left its impress on national habits. Among vigorous races, and in times of great military conflict, they aimed at increasing the supply of males capable of bearing arms; and in the higher stages of progress they have inculcated a great respect for the sanctity of human life; but in the lower stages, they have encouraged and even compelled the ruthless slaughter of the infirm

[1] See IV. I. 1.

and the aged, and sometimes of a certain proportion of the female children. IV, IV, 1.

Fluctuations of opinion on State encouragement of large families.

In ancient Greece and Rome, with the safety-valve of the power of planting colonies, and in the presence of constant war, an increase in the number of citizens was regarded as a source of public strength; and marriage was encouraged by public opinion, and in many cases even by legislation: though thoughtful men were even then aware that action in the contrary sense might be necessary if the responsibilities of parentage should ever cease to be burdensome.[1] In later times there may be observed, as Roscher says,[2] a regular ebb and flow of the opinion that the State should encourage the growth of numbers. It was in full flow in England under the first two Tudors, but in the course of the sixteenth century it slackened and turned; and it began to ebb, when the abolition of the celibacy of the religious orders, and the more settled state of the country had had time to give a perceptible impetus to population; the effective demand for labour having meanwhile been diminished by the increase of sheep runs, and by the collapse of that part of the industrial system which had been organized by the monastic establishments. Later on the growth of population was checked by that rise in the standard of comfort which took effect in the general adoption of wheat as the staple food of Englishmen during the first half of the eighteenth century. At that time there were even fears, which later inquiries showed to be unfounded, that the population was actually diminishing. Petty[3] had forestalled some of Carey's and Wakefield's arguments as to the advantages of a dense population. Child had argued that "whatever tends to the depopulating of a country tends to the impoverishment of it"; and that "most nations in the civilized parts of the world are more or less rich or poor proportionably to the paucity or plenty of their people, and not to the sterility or fruitfulness of their land."[4] And by the time that the world-struggle with France had attained its height, when the demands for

[1] Thus Aristotle (*Politics*, II. 6) objects to Plato's scheme for equalizing property and abolishing poverty on the ground that it would be unworkable unless the State exercised a firm control over the growth of numbers. And as Jowett points out, Plato himself was aware of this (see *Laws*, v. 740: also Aristotle, *Politics*, VII. 16). The opinion formerly held that the population of Greece declined from the seventh century B.C., and that of Rome from the third, has recently been called in question, see "Die Bevölkerung des Altertums" by Edouard Meyer in the *Handwörterbuch der Staatswissenschaften*.

[2] *Political Economy*, § 254.

[3] He argues that Holland is richer than it appears to be relatively to France, because its people have access to many advantages that cannot be had by those who live on poorer land, and are therefore more scattered. "Rich land is better than coarse land of the same Rent." *Political Arithmetick*, ch. I.

[4] *Discourses on Trade*, ch. x. Harris, Essay on *Coins*, pp. 32, 3, argues to a similar effect, and proposes to "encourage matrimony among the lower classes by giving some privileges to those who have children," etc.

IV, iv, 2. more and more troops were ever growing, and when manufacturers were wanting more men for their new machinery; the bias of the ruling classes was strongly flowing in favour of an increase of population. So far did this movement of opinion reach that in 1796 Pitt declared that a man who had enriched his country with a number of children had a claim on its assistance. An Act, passed amid the military anxieties of 1806, which granted exemptions from taxes to the fathers of more than two children born in wedlock, was repealed as soon as Napoleon had been safely lodged in St. Helena.[1]

The doctrines of recent economists. The Physiocrats.

§ 2. But during all this time there had been a growing feeling among those who thought most seriously on social problems, that an inordinate increase of numbers, whether it strengthened the State or not, must necessarily cause great misery: and that the rulers of the State had no right to subordinate individual happiness to the aggrandizement of the State. In France in particular a reaction was caused, as we have seen, by the cynical selfishness with which the Court and its adherents sacrificed the wellbeing of the people for the sake of their own luxury and military glory. If the humane sympathies of the Physiocrats had been able to overcome the frivolity and harshness of the privileged classes of France, the eighteenth century would probably not have ended in tumult and bloodshed, the march of freedom in England would not have been arrested, and the dial of progress would have been more forward than it is by the space of at least a generation. As it was, but little attention was paid to Quesnay's guarded but forcible protest:—"one should aim less at augmenting the population than at increasing the national income, for the condition of greater comfort which is derived from a good income, is preferable to that in which a population exceeds its income and is ever in urgent need of the means of subsistence."[2]

[1] "Let us," said Pitt, "make relief, in cases where there are a large number of children, a matter of right and an honour, instead of a ground for opprobrium and contempt. This will make a large family a blessing and not a curse, and this will draw a proper line of distinction between those who are able to provide for themselves by labour, and those who after having enriched their country with a number of children have a claim on its assistance for their support." Of course he desired "to discourage relief where it was not wanted." Napoleon the First had offered to take under his own charge one member of any family which contained seven male children; and Louis XIV., his predecessor in the slaughter of men, had exempted from public taxes all those who married before the age of 20 or had more than ten legitimate children A comparison of the rapid increase in the population of Germany with that of France was a chief motive of the order of the French Chamber in 1885 that education and board should be provided at the public expense for every seventh child in necessitous families: and in 1913 a law was passed giving bounties under certain conditions to parents of large families. The British Budget Bill of 1909 allowed a small abatement of income tax for fathers of families.

[2] The Physiocratic doctrine with regard to the tendency of population to increase up to the margin of subsistence may be given in Turgot's words:—the employer

Adam Smith.

Adam Smith said but little on the question of population, for indeed he wrote at one of the culminating points of the prosperity of the English working classes; but what he does say is wise and well balanced and modern in tone. Accepting the physiocratic doctrine as his basis, he corrected it by insisting that the necessaries of life are not a fixed and determined quantity, but have varied much from place to place and time to time; and may vary more.[1] But he did not work out this hint fully. And there was nothing to lead him to anticipate the second great limitation of the Physiocratic doctrine, which has been made prominent in our time by the carriage of wheat from the centre of America to Liverpool for less than what had been the cost of its carriage across England.

The eighteenth century ended and the nineteenth began in gloom.

The eighteenth century wore on to its close and the next century began; year by year the condition of the working classes in England became more gloomy. An astonishing series of bad harvests,[2] a most exhausting war,[3] and a change in the methods of industry that dislocated old ties, combined with an injudicious poor law to bring the working classes into the greatest misery they have ever suffered, at all events since the beginning of trustworthy records of English social history.[4] And to crown all, well-meaning enthusiasts, chiefly under French influence, were proposing communistic schemes which

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"since he always has his choice of a great number of working men, will choose that one who will work most cheaply. Thus then the workers are compelled by mutual competition to lower their price; and with regard to every kind of labour the result is bound to be reached—and it is reached as a matter of fact—that the wages of the worker are limited to that which is necessary to procure his subsistence." (*Sur la formation et la distribution des richesses*, § VI.)

Similarly Sir James Steuart says (*Inquiry*, Bk. I. ch. III.), "The generative faculty resembles a spring loaded with a weight, which always exerts itself in proportion to the diminution of resistance: when food has remained some time without augmentation or diminution, generation will carry numbers as high as possible; if then food comes to be diminished the spring is overpowered; the force of it becomes less than nothing, inhabitants will diminish at least in proportion to the overcharge. If, on the other hand, food be increased, the spring which stood at 0, will begin to exert itself in proportion as the resistance diminishes; people will begin to be better fed; they will multiply, and in proportion as they increase in numbers the food will become scarce again." Sir James Steuart was much under the influence of the Physiocrats, and was indeed in some respects imbued with Continental rather than English notions of government: and his artificial schemes for regulating population seem very far off from us now. See his *Inquiry*, Bk. I. ch. XII., "*Of the great advantage of combining a well-digested Theory and a perfect Knowledge of Facts with the Practical Part of Government in order to make a People multiply.*"

[1] See *Wealth of Nations*, Bk. I. ch. VIII. and Bk. V. ch. II. See also *supra*, Bk. II. ch. IV.

[2] The average price of wheat in the decade 1771–1780 in which Adam Smith wrote was 34*s*. 7*d*.; in 1781–1790 it was 37*s*. 1*d*.; in 1791–1800 it was 63*s*. 6*d*.; in 1801–1810 it was 83*s*. 11*d*.; and in 1811–1820 it was 87*s*. 6*d*.

[3] Early in the last century the Imperial taxes—for the greater part war taxes—amounted to one-fifth of the whole income of the country; whereas now they are not much more than a twentieth, and even of this a great part is spent on education and other benefits which Government did not then afford.

[4] See below § 7 and above Bk. I. ch. III. §§ 5, 6.

IV, IV, 3. would enable people to throw on society the whole responsibility for rearing their children.[1]

Thus while the recruiting sergeant and the employer of labour were calling for measures tending to increase the growth of population, more far-seeing men began to inquire whether the race could escape degradation if the numbers continued long to increase as they were then doing. Of these inquirers the chief was Malthus, and his *Essay on the Principle of Population* is the starting-point of all modern speculations on the subject.

Malthus.

His argument has three stages. The first.

§ 3. Malthus' reasoning consists of three parts, which must be kept distinct. The first relates to the supply of labour. By a careful study of facts he proves that every people, of whose history we have a trustworthy record, has been so prolific that the growth of its numbers would have been rapid and continuous if it had not been checked either by a scarcity of the necessaries of life, or some other cause, that is, by disease, by war, by infanticide, or lastly by voluntary restraint.

The second.

His second position relates to the demand for labour. Like the first it is supported by facts, but by a different set of facts. He shows that up to the time at which he wrote no country (as distinguished from a city, such as Rome or Venice) had been able to obtain an abundant supply of the necessaries of life after its territory had become very thickly peopled. The produce which Nature returns to the work of man is her effective demand for population: and he shows that up to this time a rapid increase in population when already thick had not led to a proportionate increase in this demand.[2]

The third.

Thirdly, he draws the conclusion that what had been in the past, was likely to be in the future; and that the growth of population would be checked by poverty or some other cause of suffering unless it were checked by voluntary restraint. He therefore urges people

[1] Especially Godwin in his *Inquiry concerning Political Justice* (1792). It is interesting to compare Malthus' criticism of this Essay (Bk. III. ch. II.) with Aristotle's comments on Plato's *Republic* (see especially *Politics*, II. 6).

[2] But many of his critics suppose him to have stated his position much less unreservedly than he did; they have forgotten such passages as this:—"From a review of the state of society in former periods compared with the present I should certainly say that the evils resulting from the principle of population have rather diminished than increased, even under the disadvantage of an almost total ignorance of their real cause. And if we can indulge the hope that this ignorance will be gradually dissipated, it does not seem unreasonable to hope that they will be still further diminished. The increase of absolute population, which will of course take place, will evidently tend but little to weaken this expectation, as everything depends on the relative proportions between population and food, and not on the absolute number of the people. In the former part of this work it appeared that the countries which possessed the fewest people often suffered the most from the effects of the principle of population." *Essay*, Bk. IV. ch. XII.

to use this restraint, and, while leading lives of moral purity, to abstain from very early marriages.[1] IV, IV, 3.

Later events affect the validity of his second and third stages, but not of his first.

His position with regard to the supply of population, with which alone we are directly concerned in this chapter, remains substantially valid. The changes which the course of events has introduced into the doctrine of population relate chiefly to the second and third steps of his reasoning. We have already noticed that the English economists of the earlier half of last century overrated the tendency of an increasing population to press upon the means of subsistence; and it was not Malthus' fault that he could not foresee the great developments of steam transport by land and by sea, which have enabled Englishmen of the present generation to obtain the products of the richest lands of the earth at comparatively small cost.

But the fact that he did not foresee these changes makes the second and third steps of his argument antiquated in form; though they are still in a great measure valid in substance. It remains true that unless the checks on the growth of population in force at the end of the nineteenth century are on the whole increased (they are

[1] In the first edition of his essay, 1798, Malthus gave his argument without any detailed statement of facts, though from the first he regarded it as needing to be treated in direct connection with a study of facts; as is shown by his having told Pryme (who afterwards became the first Professor of Political Economy at Cambridge) "that his theory was first suggested to his mind in an argumentative conversation which he had with his father on the state of some other countries" (Pryme's *Recollections*, p. 66). American experience showed that population if unchecked would double at least once in twenty-five years. He argued that a doubled population might, even in a country as thickly populated as England was with its seven million inhabitants, conceivably though not probably double the subsistence raised from the English soil: but that labour doubled again would not suffice to double the produce again. "Let us then take this for our rule, though certainly far beyond the truth; and allow that the whole produce of the island might be increased every twenty-five years [that is with every doubling of the population] by a quantity of subsistence equal to that which it at present produces"; or in other words, in an arithmetical progression. His desire to make himself clearly understood made him, as Wagner says in his excellent introduction to the study of Population (*Grundlegung*, Ed. 3, p. 453), "put too sharp a point on his doctrine, and formulate it too absolutely." Thus he got into the habit of speaking of production as capable of increasing in an arithmetical ratio: and many writers think that he attached importance to the phrase itself: whereas it was really only a short way of stating the utmost that he thought any reasonable person could ask him to concede. What he meant, stated in modern language, was that the tendency to diminishing return, which is assumed throughout his argument, would begin to operate sharply after the produce of the island had been doubled. Doubled labour might give doubled produce: but quadrupled labour would hardly treble it: octupled labour would not quadruple it.

In the second edition, 1803, he based himself on so wide and careful a statement of facts as to claim a place among the founders of historical economics; he softened and explained away many of the "sharp points" of his old doctrine, though he did not abandon (as was implied in earlier editions of this work) the use of the phrase "arithmetical ratio." In particular he took a less despondent view of the future of the human race; and dwelt on the hope that moral restraint might hold population in check, and that "vice and misery," the old checks, might thus be kept in abeyance. Francis Place, who was not blind to his many faults, wrote in 1822 an apology for him, excellent in tone and judgment. Good accounts of his work are given in Bonar's *Malthus and his Work*, Cannan's *Production and Distribution*, 1776–1848, and Nicholson's *Political Economy*, Bk. I. ch. XII.

IV, IV, 4. certain to change their form in places that are as yet imperfectly civilized) it will be impossible for the habits of comfort prevailing in Western Europe to spread themselves over the whole world and maintain themselves for many hundred years. But of this more hereafter.[1]

Natural Increase.

§ **4.** The growth in numbers of a people depends firstly on the *Natural Increase*, that is, the excess of their births over their deaths; and secondly on migration.

The number of births depends chiefly on habits relating to marriage, the early history of which is full of instruction; but we must confine ourselves here to the conditions of marriage in modern civilized countries.

Marriage affected by the climate,

The age of marriage varies with the climate. In warm climates where childbearing begins early, it ends early, in colder climates it begins later and ends later;[2] but in every case the longer marriages are postponed beyond the age that is natural to the country, the smaller is the birth-rate; the age of the wife being of course much more important in this respect than that of the husband.[3] Given the climate, the average age of marriage depends chiefly on the ease with which young people can establish themselves, and support a family according to the standard of comfort that prevails among their friends and acquaintances; and therefore it is different in different stations of life.

and the difficulty of supporting a family.

Middle classes marry late and unskilled labourers early.

In the middle classes a man's income seldom reaches its maximum till he is forty or fifty years old; and the expense of bringing up his children is heavy and lasts for many years. The artisan earns nearly as much at twenty-one as he ever does, unless he rises

[1] Taking the present population of the world at one and a half thousand millions; and assuming that its present rate of increase (about 8 per 1000 annually, see Ravenstein's paper before the British Association in 1890) will continue, we find that in less than two hundred years it will amount to six thousand millions; or at the rate of about 200 to the square mile of fairly fertile land (Ravenstein reckons 28 million square miles of fairly fertile land, and 14 millions of poor grass lands. The first estimate is thought by many to be too high: but, allowing for this, if the less fertile land be reckoned in for what it is worth, the result will be about thirty million square miles as assumed above). Meanwhile there will probably be great improvements in the arts of agriculture; and, if so, the pressure of population on the means of subsistence may be held in check for about two hundred years, but not longer.

[2] Of course the length of a generation has itself some influence on the growth of population. If it is 25 years in one place and 20 in another; and if in each place population doubles once in two generations during a thousand years, the increase will be a million-fold in the first place, but thirty million-fold in the second.

[3] Dr. Ogle (*Statistical Journal*, Vol. 53) calculates that if the average age of marriage of women in England were postponed five years, the number of children to a marriage, which is now 4·2 would fall to 3·1. Körösi, basing himself on the facts of the relatively warm climate of Buda Pest, finds 18–20 the most prolific age for women, 24–26 that for men. But he concludes that a slight postponement of weddings beyond these ages is advisable mainly on the ground that the vitality of the children of women under 20 is generally small. See *Proceedings of Congress of Hygiene and Demography*, London 1892, and *Statistical Journal*, Vol. 57.

to a responsible post, but he does not earn much before he is twenty-one: his children are likely to be a considerable expense to him till about the age of fifteen; unless they are sent into a factory, where they may pay their way at a very early age; and lastly the labourer earns nearly full wages at eighteen, while his children begin to pay their own expenses very early. In consequence, the average age at marriage is highest among the middle classes: it is low among the artisans and lower still among the unskilled labourers.[1] IV, iv, 4.

Unskilled labourers, when not so poor as to suffer actual want and not restrained by any external cause, have seldom, if ever, shown a lower power of increase than that of doubling in thirty years; that is, of multiplying a million-fold in six hundred years, a billion-fold in twelve hundred: and hence it might be inferred *a priori* that their increase has never gone on without restraint for any considerable time. This inference is confirmed by the teaching of all history. Throughout Europe during the Middle Ages, and in some parts of it even up to the present time, unmarried labourers have usually slept in the farmhouse or with their parents; while a married pair have generally required a house for themselves: when a village has as many hands as it can well employ, the number of houses is not increased, and young people have to wait as best they can.

Hindrances to early marriage in station.

There are many parts of Europe even now in which custom exercising the force of law prevents more than one son in each family from marrying; he is generally the eldest, but in some places the

[1] The term marriage in the text must be taken in a wide sense so as to include not only legal marriages, but all those informal unions which are sufficiently permanent in character to involve for several years at least the practical responsibilities of married life. They are often contracted at an early age, and not unfrequently lead up to legal marriages after the lapse of some years. For this reason the average age at marriage in the broad sense of the term, with which alone we are here concerned, is below the average age at legal marriage. The allowance to be made on this head for the whole of the working classes is probably considerable; but it is very much greater in the case of unskilled labourers than of any other class. The following statistics must be interpreted in the light of this remark, and of the fact that all English industrial statistics are vitiated by the want of sufficient care in the classification of the working classes in our official returns. The Registrar-General's forty-ninth Annual Report states that in certain selected districts the returns of marriages for 1884 5 were examined with the following results; the number after each occupation being the average age of bachelors in it at marriage, and the following number, in brackets, being the average age of spinsters who married men of that occupation:—Miners 24·06 (22·46); Textile hands 24·38 (23·43); Shoemakers, Tailors 24·92 (24·31); Artisans 25·35 (23·70); Labourers 25·56 (23·66); Commercial Clerks 26·25 (24·43); Shopkeepers, Shopmen 26·67 (24·22); Farmers and sons 29·23 (26·91); Professional and Independent Class 31·22 (26·40).

Dr. Ogle, in the paper already referred to, shows that the marriage-rate is greatest generally in those parts of England in which the percentage of those women between 15 and 25 years of age who are industrially occupied is the greatest. This is no doubt due, as he suggests, partly to the willingness of men to have their money incomes supplemented by those of their wives; but it may be partly due also to an excess of women of a marriageable age in those districts.

IV, iv, 5.

ary rural districts.

youngest: if any other son marries he must leave the village. When great material prosperity and the absence of all extreme poverty are found in old-fashioned corners of the Old World, the explanation generally lies in some such custom as this with all its evils and hardships.[1] It is true that the severity of this custom may be tempered by the power of migration; but in the Middle Ages the free movement of the people was hindered by stern regulations. The free towns indeed often encouraged immigration from the country: but the rules of the gilds were in some respects almost as cruel to people who tried to escape from their old homes as were those enforced by the feudal lords themselves.[2]

The birth-rate is often low among peasant proprietors,

§ 5. In this respect the position of the hired agricultural labourer has changed very much. The towns are now always open to him and his children; and if he betakes himself to the New World he is likely to succeed better than any other class of emigrants. But on the other hand the gradual rise in the value of land and its growing scarcity is tending to check the increase of population in some districts in which the system of peasant properties prevails, in which there is not much enterprise for opening out new trades or for emigration, and parents feel that the social position of their children will depend on the amount of their land. They incline to limit artificially the size of their families and to treat marriage very much as a business contract, seeking always to marry their sons to heiresses. Francis Galton pointed out that, though the families of English peers are generally large, the habits of marrying the eldest son to an heiress who is presumably not of a fertile stock, and sometimes dissuading younger sons from marriage, have led to the extinction of many peerages. Similar habits among French peasants, combined with their preference for small families, keep their numbers almost stationary.

but not among American farmers.

On the other hand there seem to be no conditions more favourable to the rapid growth of numbers than those of the agricultural districts of new countries. Land is to be had in abundance, railways and steamships carry away the produce of the land and bring back in exchange implements of advanced types, and many of the comforts and luxuries of life. The "farmer," as the peasant pro-

[1] Thus a visit to the valley Jachenau in the Bavarian Alps about 1880 found this custom still in full force. Aided by a great recent rise in the value of their woods, with regard to which they had pursued a farseeing policy, the inhabitants lived prosperously in large houses, the younger brothers and sisters acting as servants in their old homes or elsewhere. They were of a different race from the workpeople in the neighbouring valleys, who lived poor and hard lives, but seemed to think that the Jachenau purchased its material prosperity at too great a cost.

[2] See *e.g.* Rogers, *Six Centuries*, pp. 106, 7.

prietor is called in America, finds therefore that a large family is not a burden, but an assistance to him. He and they live healthy out-of-door lives; there is nothing to check but everything to stimulate the growth of numbers. The natural increase is aided by immigration; and thus, in spite of the fact that some classes of the inhabitants of large cities in America are, it is said, reluctant to have many children, the population has increased sixteen-fold in the last hundred years.[1] IV, iv, 5.

General conclusion

On the whole it seems proved that the birth-rate is generally lower among the well-to-do than among those who make little

[1] The extreme prudence of peasant proprietors under stationary conditions was noticed by Malthus; see his account of Switzerland (*Essay*, Bk. II. ch. V). Adam Smith remarked that poor Highland women frequently had twenty children of whom not more than two reached maturity (*Wealth of Nations*, Bk. I. ch. VIII.); and the notion that want stimulated fertility was insisted on by Doubleday, *True Law of Population*. See also Sadler, *Law of Population*. Herbert Spencer seemed to think it probable that the progress of civilization will of itself hold the growth of population completely in check. But Malthus' remark, that the reproductive power is less in barbarous than in civilized races, has been extended by Darwin to the animal and vegetable kingdom generally.

Mr. Charles Booth (*Statistical Journal*, 1893) has divided London into 27 districts (chiefly Registration districts); and arranged them in order of poverty, of over-crowding, of high birth-rate and of high death-rate. He finds that the four orders are generally the same. The excess of birth-rate over death-rate is lowest in the very rich and the very poor districts.

The birth-rate in England and Wales is nominally diminishing at about an equal rate in both town and country. But the continuous migration of young persons from rural to industrial areas has considerably depleted the ranks of young married women in the rural districts; and, when allowance is made for this fact, we find that the percentage of births to women of childbearing ages is much higher in them than in the towns: as is shown in the following table published by the Registrar-General in 1907.

Mean Annual Birth-rates in Urban and Rural Areas.

Period.	Calculated on the total population.		Calculated on the female population, aged 15-45 years.	
	Rate per 1000.	Compared with rate in 1870-72 taken as 100.	Rate per 1000.	Compared with rate in 1870-72 taken as 100.
Urban (20 large towns, with an aggregate population of 9,742,404 persons at the date of the Census of 1901).				
1870-72 . .	36·7	100·0	143·1	100·0
1880-82 . .	35·7	97·3	140·6	98·3
1890-92 . .	32·0	87·2	124·6	87·1
1900-1902 .	29·8	81·2	111·4	77·8
Rural (112 entirely rural registration districts, with an aggregate population of 1,330,319 persons at the date of the Census of 1901).				
1870-72 . .	31·6	100·0	158·9	100·0
1880-82 . .	30·3	95·9	153·5	96·6
1890-92 . .	27·8	88·0	135·6	85·3
1900-1902 .	26·0	82·3	120·7	76·0

expensive provision for the future of themselves and their families, and who live an active life: and that fecundity is diminished by luxurious habits of living. Probably it is also diminished by severe mental strain; that is to say, given the natural strength of the parents, their expectation of a large family is diminished by a great increase of mental strain. Of course those who do high mental work, have as a class more than the average of constitutional and nervous strength; and Galton has shown that they are not as a class unprolific. But they commonly marry late.

Population in England.

§ 6. The growth of population in England has a more clearly defined history than that in the United Kingdom, and we shall find some interest in noticing its chief movements.

The Middle Ages.

The restraints on the increase of numbers during the Middle Ages were the same in England as elsewhere. In England as elsewhere the religious orders were a refuge to those for whom no establishment in marriage could be provided; and religious celibacy, while undoubtedly acting in some measure as an independent check on the growth of population, is in the main to be regarded rather as a method in which the broad natural forces tending to restrain population expressed themselves, than as an addition to them. Infectious and contagious diseases, both endemic and epidemic, were caused by dirty habits of life which were even worse in England than in the South of Europe; and famines by the failures of good harvests and the difficulties of communication; though this evil was less in England than elsewhere.

Country life was, as elsewhere, rigid in its habits; young people

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The movements of the population of France have been studied with exceptional care: and the great work on the subject by Levasseur, *La Population Française*, is a mine of valuable information as regard other nations besides France. Montesquieu, reasoning perhaps rather *a priori*, accused the law of primogeniture which ruled in his time in France of reducing the number of children in a family: and le Play brought the same charge against the law of compulsory division. Levasseur (*l.c.* Vol. III. pp. 171–7) calls attention to the contrast; and remarks that Malthus' expectations of the effect of the Civil Code on population were in harmony with Montesquieu's rather than le Play's diagnosis. But in fact the birth-rate varies much from one part of France to another. It is generally lower where a large part of the population owns land than where it does not. If however the Departments of France be arranged in groups in ascending order of the property left at death (*valeurs successorales par tête d'habitant*), the corresponding birth-rate descends almost uniformly, being 23 per hundred married women between 15 and 50 years for the ten Departments in which the property left is 48–57 fr.; and 13·2 for the Seine, where it is 412 fr. And in Paris itself the arrondissements inhabited by the well-to-do show a smaller percentage of families with more than two children than the poorer arrondissements show. There is much interest in the careful analysis which Levasseur gives of the connection between economic conditions and birth-rate; his general conclusion being that it is not direct but indirect, through the mutual influence of the two on manners and the habit of life (*mœurs*). He appears to hold that, however much the decline in the numbers of the French relatively to surrounding nations may be regretted from the political and military points of view, there is much good mixed with the evil in its influences on material comfort and even social progress.

found it difficult to establish themselves until some other married pair had passed from the scene and made a vacancy in their own parish; for migration to another parish was seldom thought of by an agricultural labourer under ordinary circumstances. Consequently whenever plague or war or famine thinned the population, there were always many waiting to be married, who filled the vacant places; and, being perhaps younger and stronger than the average of newly married couples, had larger families.[1]

There was however some movement even of agricultural labourers towards districts which had been struck more heavily than their neighbours by pestilence, by famine or the sword. Moreover artisans were often more or less on the move, and this was especially the case with those who were engaged in the building trades, and those who worked in metal and wood; though no doubt the "wander years" were chiefly those of youth, and after these were over the wanderer was likely to settle down in the place in which he was born. Again, there seems to have been a good deal of migration on the part of the retainers of the landed gentry, especially of the greater barons who had seats in several parts of the country. And lastly, in spite of the selfish exclusiveness which the gilds developed as years went on, the towns offered in England as elsewhere a refuge to many who could get no good openings for work and for marriage in their own homes. In these various ways some elasticity was introduced into the rigid system of mediæval economy: and population was able to avail itself in some measure of the increased demand for labour which came gradually with the growth of knowledge, the establishment of law and order, and the development of oceanic trade.[2]

Settlement laws.

In the latter half of the seventeenth and the first half of the eighteenth century the central government exerted itself to hinder

[1] Thus we are told that after the Black Death of 1349 most marriages were very fertile (Rogers, *History of Agriculture and Prices*, Vol. I. p. 301).

[2] There is no certain knowledge to be had as to the density of population in England before the eighteenth century; but the following estimates, reproduced from Steffen (*Geschichte der englischen Lohn-arbeiter*, I. pp. 463 ff.), are probably the best as yet available. *Domesday Book* suggests that in 1086 the population of England was between two and two-and-a-half millions. Just before the Black Death (1348) it may have been between three-and-a-half and four-and-a-half millions; and just afterwards two-and-a-half millions. It began to recover quickly; but made slow progress between 1400 and 1550: it increased rather fast in the next hundred years, and reached five-and-a-half millions in 1700.

If we are to trust Harrison (*Description of England*, Bk. II. ch. XVI.), the muster of men able for service in 1574 amounted to 1,172,674.

The Black Death was England's only very great calamity. She was not, like the rest of Europe, liable to devastating wars, such as the Thirty Years' War, which destroyed more than half the population of Germany, a loss which it required a full century to recover. (See Rümelin's instructive article on *Bevölkerungslehre* in Schönberg's *Handbuch*.)

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the adjustment of the supply of population in different parts of the country to the demand for it by Settlement laws, which made any one chargeable to a parish who had resided there forty days, but ordered that he might be sent home by force at any time within that period.[1] Landlords and farmers were so eager to prevent people from getting a "settlement" in their parish that they put great difficulties in the way of building cottages, and sometimes even razed them to the ground. In consequence the agricultural population of England was stationary during the hundred years ending with 1760; while the manufactures were not yet sufficiently developed to absorb large numbers. This retardation in the growth of numbers was partly caused by, and partly a cause of, a rise in the standard of living; a chief element of which was an increased use of wheat in the place of inferior grains as the food of the common people.[2]

Slow growth of population and rise in the standard of living in the first half of the eighteenth century;

changes in the second half.

From 1760 onwards those who could not establish themselves at home found little difficulty in getting employment in the new manufacturing or mining districts, where the demand for workers often kept the local authorities from enforcing the removal clauses of the Settlement Act. To these districts young people resorted freely, and the birth-rate in them became exceptionally high; but so did the death-rate also; the net result being a fairly rapid growth of population. At the end of the century, when Malthus wrote, the Poor Law again began to influence the age of marriage; but this time in the direction of making it unduly early. The sufferings of the working classes caused by a series of famines and by the French War made some measure of relief necessary; and the need of large bodies of recruits for the army and navy was an additional inducement to tender-hearted people to be somewhat liberal in their allowances to a large family, with the practical effect of making the father of many children often able to procure more indulgences for himself without working than he could have got by hard work if he had

[1] Adam Smith is justly indignant at this. (See *Wealth of Nations*, Bk. I. ch. X. Part II. and Book, IV. ch. II.) The Act recites (14 Charles II. c. 12, A.D. 1662) that "by reason of some defects in the law, poor people are not restrained from going from one parish to another, and thereby do endeavour to settle themselves in those parishes where there is the best stock, the largest wastes or commons to build cottages, and the most woods for them to burn and destroy: etc." and it is therefore ordered "that upon complaint made . . . within forty days after any such person or persons coming, so as to settle as aforesaid, in any tenement under the yearly value of ten pounds . . . it shall be lawful for any two justices of the Peace . . . to remove and convey such person or persons to such parish where he or they were last legally settled." Several Acts purporting to soften its harshness had been passed before Adam Smith's time; but they had been ineffective. In 1795 however it was ordered that no one should be removed until he became actually chargeable.

[2] Some interesting remarks on this subject are made by Eden, *History of the Poor*, I. pp. 560–4.

been unmarried or had only a small family. Those who availed themselves most of this bounty were naturally the laziest and meanest of the people, those with least self-respect and enterprise. So although there was in the manufacturing towns a fearful mortality, particularly of infants, the quantity of the people increased fast; but its quality improved little, if at all, till the passing of the New Poor Law in 1834. Since that time the rapid growth of the town population has, as we shall see in the next chapter, tended to increase mortality, but this has been counteracted by the growth of temperance, of medical knowledge, of sanitation and of general cleanliness. Emigration has increased, the age of marriage has been slightly raised and a somewhat less proportion of the whole population are married; but, on the other hand, the ratio of births to a marriage has risen;[1] with the result that population has been growing very nearly steadily.[2] Let us examine the course of recent changes a little more closely.

Since the reform of the poor laws the growth of population has been fairly steady.

§ 7. Early in this century, when wages were low and wheat was dear, the working classes generally spent more than half their income on bread: and consequently a rise in the price of wheat diminished marriages very much among them: that is, it diminished very much

In the earlier part of the century the marriage-

[1] But this increase in the figures shown is partly due to improved registration of births. (Farr, *Vital Statistics*, p. 97.)

[2] The following tables show the growth of the population of England and Wales from the beginning of the eighteenth century. The figures before 1801 are computed from the registers of births and deaths, and the poll and hearth tax returns: those since 1801 from Census returns. It will be noticed that the numbers increased nearly as much in the twenty years following 1760 as in the preceding sixty years. The pressure of the great war and the high price of corn is shown in the slow growth between 1790 and 1801; and the effects of indiscriminate poor law allowances, in spite of greater pressure, is shown by the rapid increase in the next ten years, and the still greater increase when that pressure was removed in the decade ending 1821. The third column shows the percentage which the increase during the preceding decade was of the population at the beginning of that decade.

Year.	Population (000's omitted).	Increase per cent.	Year.	Population (000's omitted).	Increase per cent.
1700	5,475	—	1801	8,892	2·5
1710	5,240	—4·9 *	1811	10,164	14·3
1720	5,565	6·2	1821	12,000	18·1
1730	5,796	4·1	1831	13,897	15·8
1740	6,064	4·6	1841	15,909	14·5
1750	6,467	6·6	1851	17,928	12·7
1760	6,736	4·1	1861	20,066	11·9
1770	7,428	10·3	1871	22,712	13·2
1780	7,953	7·1	1881	25,974	14·4
1790	8,675	9·1	1891	29,002	11·7
			1901	32,527	11·7

* Decrease; but these early figures are untrustworthy.

The great growth of emigration during recent years makes it important to correct the figures for the last three decades so as to show the "natural increase," viz. that due to the excess of births over deaths. The net emigration from the United Kingdom during the decades 1871-81 and 1881-91 was 1,480,000, and 1,747,000 respectively.

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rate varied with the goodness of the harvest. Later on the influence of commercial fluctuations predominated.

the number of marriages by banns. But it raised the income of many members of the well-to-do classes, and therefore often increased the number of marriages by licence.[1] Since however these were but a small part of the whole, the net effect was to lower the marriage-rate.[2] But as time went on, the price of wheat fell and wages rose, till now the working classes spend on the average less than a quarter of their incomes on bread; and in consequence the variations of commercial prosperity have got to exercise a preponderating influence on the marriage-rate.[3]

Since 1873 though the average real income of the population of England has indeed been increasing, its rate of increase has been less than in the preceding years, and meanwhile there has been a continuous fall of prices, and consequently a continuous fall in the money incomes of many classes of society. Now people are governed in their calculations as to whether they can afford to marry or not, more by the money income which they expect to be able to get, than by elaborate calculations of changes in its purchasing power. And therefore the standard of living among the working classes has been rising rapidly, perhaps more rapidly than at any other time in English history: their household expenditure measured in money has remained about stationary, and measured in goods has increased very fast. Meanwhile the price of wheat has also fallen very much, and a marked fall in the marriage-rate for the whole country has often accompanied a marked fall in the price of wheat. The marriage-rate is now reckoned on the basis that each marriage involves two persons and should therefore count for two. The

[1] See Farr's 17th Annual Report for 1854 as Registrar-General, or the abstract of it in *Vital Statistics* (pp. 72–5).

[2] For instance, representing the price of wheat in shillings and the number of marriages in England and Wales in thousands, we have for 1801 wheat at 119 and marriages at 67, for 1803 wheat at 59 and marriages at 94; for 1805 the numbers are 90 and 80, for 1807 they are 75 and 84, for 1812 they are 126 and 82, for 1815 they are 66 and 100, for 1817 they are 97 and 88, for 1822 they are 45 and 99.

[3] Since 1820 the average price of wheat has seldom exceeded 60*s.* and never 75*s.*: and the successive inflations of commerce which culminated and broke in 1826, 1836–9, 1848, 1856, 1866 and 1873 exercised an influence on the marriage-rate about equal with changes in the price of corn. When the two causes act together the effects are very striking: thus between 1829 and 1834, there was a recovery of prosperity accompanied by a steady fall in the price of wheat and marriages rose from a hundred and four to a hundred and twenty-one thousand. The marriage-rate rose again rapidly between 1842 and 1845 when the price of wheat was a little lower than in the preceding years, and the business of the country was reviving; and again under similar circumstances between 1847 and 1853 and between 1862 and 1865.

A comparison of the marriage-rate with the harvests in Sweden for the years 1749 to 1883 is given by Sir Rawson Rawson in the *Statistical Journal* for December 1885. The harvest does not declare itself till part of the year's tale of marriages is made up; and further the inequalities of harvests are to some extent compensated for by the storage of grain; and therefore the individual harvest figures do not correspond closely with the marriage-rate. But when several good or bad harvests come together, the effect in increasing or diminishing the marriage-rate is very clearly marked.

English rate fell from 17·6 per thousand in 1873 to 14·2 in 1886. It rose to 16·5 in 1899; in 1907 it was 15·8, but in 1908 only 14·9.[1]

Scotland.

There is much to be learnt from the history of population in Scotland and in Ireland. In the lowlands of Scotland a high standard of education, the development of mineral resources, and close contact with their richer English neighbours have combined to afford a great increase of average income to a rapidly increasing population.

Ireland.

On the other hand, the inordinate growth of population in Ireland before the potato-famine in 1847, and its steady diminution since that time, will remain for ever landmarks in economic history.

International vital statistics

Comparing the habits of different nations[2] we find that in the Teutonic countries of Central and Northern Europe, the age of marriage is kept late, partly in consequence of the early years of manhood being spent in the army; but that it has been very early in Russia; where, at all events under the old régime, the family group insisted on the son's bringing a wife to help in the work of the household as early as possible, even if he had to leave her for a time and go to earn his living elsewhere. In the United Kingdom and America there is no compulsory service, and men marry early. In France, contrary to general opinion, early marriages on the part of men are not rare; while on the part of women they are more common than in any country for which we have statistics, except the Slavonic countries, where they are much the highest.

The marriage-rate, the birth-rate and the death-rate are diminishing in almost every country. But the general mortality is high where the birth-rate is high. For instance, both are high in Slavonic countries, and both are low in the North of Europe. The death-rates are low in Australasia, and the "natural" increase there is fairly high, though the birth-rate is low and falling very fast. In

[1] Statistics of exports are among the most convenient indications of the fluctuations of commercial credit and industrial activity: and in the article already quoted, Ogle has shown a correspondence between the marriage-rate and the exports per head. Compare diagrams in Vol. II. p. 12 of Levasseur's *La Population Française*; and with regard to Massachusetts by Willcox in the *Political Science Quarterly*, Vol. VIII. pp. 76–82. Ogle's inquiries have been extended and corrected in a paper read by R. H. Hooker before the Manchester Statistical Society, in January 1898; who points out that if the marriage-rate fluctuates, the birth-rate during an ascending phase of the marriage-rate is apt to correspond to the marriage-rate not for that phase, but for the preceding phase when the marriage-rate was declining: and *vice versa*. "Hence the ratio of births to marriages declines when the marriage-rate is rising and rises when the marriage-rate falls. A curve representing the ratio of births to marriages will move inversely to the marriage-rate." He points out that the decline in the ratio of births to marriages is not great, and is accounted for by the rapid decline of illegitimate births. The ratio of legitimate births to marriages is not declining perceptibly.

[2] The following statements are based chiefly on statistics arranged by the late Signor Bodio, by M. Levasseur, *La Population Française*, and by the English Registrar-General in his Report for 1907.

IV, IV, 7. fact its fall in the various States ranged from 23 to 30 per cent. in the period 1881–1901.[1]

[1] Much instructive and suggestive matter connected with the subject of this chapter is contained in the *Statistical Memoranda and Charts relating to Public Health and Social Conditions* published by the Local Government Board in 1909 [Cd. 4671].

CHAPTER V

THE HEALTH AND STRENGTH OF THE POPULATION

The basis of industrial efficiency.

§ 1. We have next to consider the conditions on which depend health and strength, physical, mental and moral. They are the basis of industrial efficiency, on which the production of material wealth depends; while conversely the chief importance of material wealth lies in the fact that, when wisely used, it increases the health and strength, physical, mental and moral of the human race.

Physical exertion.

In many occupations industrial efficiency requires little else than physical vigour; that is, muscular strength, a good constitution and energetic habits. In estimating muscular, or indeed any other kind of strength for industrial purposes, we must take account of the number of hours in the day, of the number of days in the year, and the number of years in the lifetime, during which it can be exerted. But with this precaution we can measure a man's muscular exertion by the number of feet through which his work would raise a pound weight, if it were applied directly to this use; or in other words by the number of "foot pounds" of work that he does.[1]

requires nervous as well as muscular strength.

Although the power of sustaining great muscular exertion seems to rest on constitutional strength and other physical conditions, yet even it depends also on force of will, and strength of character. Energy of this kind, which may perhaps be taken to be the strength

[1] This measure can be applied directly to most kinds of navvies' and porters' work, and indirectly to many kinds of agricultural work. In a controversy that was waged after the great agricultural lock-out as to the relative efficiency of unskilled labour in the South and North of England, the most trustworthy measure was found in the number of tons of material that a man would load into a cart in a day. Other measures have been found in the number of acres reaped or mown, or the number of bushels of corn reaped, etc.: but these are unsatisfactory, particularly for comparing different conditions of agriculture: since the implements used, the nature of the crop and the mode of doing the work all vary widely. Thus nearly all comparisons between mediæval and modern work and wages based on the wages of reaping, mowing, etc. are valueless until we have found means to allow for the effects of changes in the methods of agriculture. It costs for instance less labour than it did to reap by hand a crop that yields a hundred bushels of corn; because the implements used are better than they were: but it may not cost less labour to reap an acre of corn; because the crops are heavier than they were.

In backward countries, particularly where there is not much use of horses or other draught animals, a great part of men's and women's work may be measured fairly well by the muscular exertion involved in it. But in England less than one-sixth of the industrial classes are now engaged on work of this kind; while the force exerted by steam-engines alone is more than twenty times as much as could be exerted by the muscles of all Englishmen.

IV, v, 2. of the man, as distinguished from that of his body, is moral rather than physical; but yet it depends on the physical condition of nervous strength. This strength of the man himself, this resolution, energy and self-mastery, or in short this "vigour" is the source of all progress: it shows itself in great deeds, in great thoughts and in the capacity for true religious feeling.[1]

Vigour works itself out in so many forms, that no simple measure of it is possible. But we are all of us constantly estimating vigour, and thinking of one person as having more "backbone," more "stuff in him," or as being "a stronger man" than another. Business men even in different trades, and University men even when engaged in different studies, get to estimate one another's strength very closely. It soon becomes known if less strength is required to get a "first class" in one study than another.

The influence of climate and race.

§ 2. In discussing the growth of numbers a little has been said incidentally of the causes which determine length of life: but they are in the main the same as those which determine constitutional strength and vigour, and they will occupy our attention again in the present chapter.

The first of these causes is the climate. In warm countries we find early marriages and high birth-rates, and in consequence a low respect for human life: this has probably been the cause of a great part of the high mortality that is generally attributed to the insalubrity of the climate.[2]

[1] This must be distinguished from nervousness, which, as a rule, indicates a general deficiency of nervous strength; though sometimes it proceeds from nervous irritability or want of balance. A man who has great nervous strength in some directions may have but little in others; the artistic temperament in particular often develops one set of nerves at the expense of others: but it is the weakness of some of the nerves, not the strength of the others, that leads to nervousness. The most perfect artistic natures seem not to have been nervous: Leonardo da Vinci and Shakespeare for example. The term "nervous strength" corresponds in some measure to *Heart* in Engel's great division of the elements of efficiency into (*a*) Body, (*b*) Reason, and (*c*) Heart (*Leib, Verstand und Herz*). He classifies activities according to the permutations *a*, *ab*, *ac*, *abc*, *acb*; *b*, *ba*, *bc*, *bca*, *bac*; *c*, *ca*, *cb*, *cab*, *cba*; the order in each case being that of relative importance, and a letter being omitted where the corresponding element plays only a very small part.

In the war of 1870 Berlin University students, who seemed to be weaker than the average soldier, were found to be able to bear fatigue better.

[2] A warm climate impairs vigour. It is not altogether hostile to high intellectual and artistic work: but it prevents people from being able to endure very hard exertion of any kind for a long time. More sustained hard work can be done in the cooler half of the temperate zone than anywhere else; and most of all in places such as England and her counterpart New Zealand, where sea-breezes keep the temperature nearly uniform. The summer heats and winter colds of many parts of Europe and America, where the mean temperature is moderate, have the effect of shortening the year for working purposes by about two months. Extreme and sustained cold is found to dull the energies, partly perhaps because it causes people to spend much of their time in close and confined quarters: inhabitants of the Arctic regions are generally incapable of long-continued severe exertion. In England popular opinion has insisted that a "warm Yule-tide makes a fat churchyard"; but statistics prove beyond question that it has the opposite effect: the average mortality is highest in the coldest quarter of the year, and higher in cold winters than in warm.

Vigour depends partly on race qualities: but these, so far as they can be explained at all, seem to be chiefly due to climate.[1]

The necessaries of life. Food.

§ 3. Climate has also a large share in determining the necessaries of life; the first of which is food. Much depends on the proper preparation of food; and a skilled housewife with ten shillings a week to spend on food will often do more for the health and strength of her family than an unskilled one with twenty. The great mortality of infants among the poor is largely due to the want of care and judgment in preparing their food; and those who do not entirely succumb to this want of motherly care often grow up with enfeebled constitutions.

Scarcity that increases mortality;

In all ages of the world except the present, want of food has caused wholesale destruction of the people. Even in London in the seventeenth and eighteenth centuries the mortality was 8 per cent. greater in years of dear corn than in years of cheap corn.[2] But gradually the effects of increased wealth and improved means of communication are making themselves felt nearly all over the world; the severity of famines is mitigated even in such a country as India; and they are unknown in Europe and in the New World. In England now want of food is scarcely ever the direct cause of death: but it is a frequent cause of that general weakening of the system which renders it unable to resist disease; and it is a chief cause of industrial inefficiency.

We have already seen that the necessaries for efficiency vary with the nature of the work to be done, but we must now examine this subject a little more closely.

and scarcity that lowers vigour.

As regards muscular work in particular there is a close connection between the supply of food that a man has, and his available strength. If the work is intermittent, as that of some dock labourers, a cheap but nutritious grain diet is sufficient. But for very heavy continuous strain such as is involved in puddlers' and the hardest navvies' work, food is required which can be digested and assimilated even when the body is tired. This quality is still more essential in the food of the higher grades of labour, whose work involves great nervous strain; though the quantity required by them is generally small.

[1] Race history is a fascinating but disappointing study for the economist: for conquering races generally incorporated the women of the conquered; they often carried with them many slaves of both sexes during their migrations, and slaves were less likely than freemen to be killed in battle or to adopt a monastic life. In consequence nearly every race had much servile, that is mixed blood in it: and as the share of servile blood was largest in the industrial classes, a race history of industrial habits seems impossible.

[2] This was proved by Farr, who eliminated disturbing causes by an instructive statistical device (*Vital Statistics*, p. 139).

IV, v, 4.

Clothing, houseroom and firing.

After food, the next necessaries of life and labour are clothing, house-room and firing. When they are deficient, the mind becomes torpid, and ultimately the physical constitution is undermined. When clothing is very scanty, it is generally worn night and day; and the skin is allowed to be enclosed in a crust of dirt. A deficiency of house-room, or of fuel, causes people to live in a vitiated atmosphere which is injurious to health and vigour; and not the least of the benefits which English people derive from the cheapness of coal, is the habit, peculiar to them, of having well-ventilated rooms even in cold weather. Badly-built houses with imperfect drainage cause diseases which even in their slighter forms weaken vitality in a wonderful way; and overcrowding leads to moral evils which diminish the numbers and lower the character of the people.

Rest.

Rest is as essential for the growth of a vigorous population as the more material necessaries of food, clothing, etc. Overwork of every form lowers vitality; while anxiety, worry, and excessive mental strain have a fatal influence in undermining the constitution, in impairing fecundity and diminishing the vigour of the race.

Hopefulness, freedom and change.

§ **4.** Next comes three closely allied conditions of vigour, namely, hopefulness, freedom, and change. All history is full of the record of inefficiency caused in varying degrees by slavery, serfdom, and other forms of civil and political oppression and repression.[1]

In all ages colonies have been apt to outstrip their mother countries in vigour and energy. This has been due partly to the abundance of land and the cheapness of necessaries at their command; partly to that natural selection of the strongest characters for a life of adventure, and partly to physiological causes connected with the mixture of races: but perhaps the most important cause of all is to be found in the hope, the freedom and the changefulness of their lives.[2]

[1] Freedom and hope increase not only man's willingness but also his power for work; physiologists tell us that a given exertion consumes less of the store of nervous energy if done under the stimulus of pleasure than of pain: and without hope there is no enterprise. Security of person and property are two conditions of this hopefulness and freedom; but security always involves restraints on freedom, and it is one of the most difficult problems of civilization to discover how to obtain the security which is a condition of freedom without too great a sacrifice of freedom itself. Changes of work, of scene, and of personal associations bring new thoughts, call attention to the imperfections of old methods, stimulate a "divine discontent," and in every way develop creative energy.

[2] By converse with others who come from different places, and have different customs, travellers learn to put on its trial many a habit of thought or action which otherwise they would have always acquiesced in as though it were a law of nature. Moreover, a shifting of places enables the more powerful and original minds to find full scope for their energies and to rise to important positions: whereas those who stay at home are often over much kept in their places. Few men are prophets in their own land; neighbours and relations are generally the last to pardon the faults and to recognize the merits of those who are less docile and more enterprising than those around them. It is doubtless chiefly for this reason that in almost every part of

Freedom so far has been regarded as freedom from external bonds. But that higher freedom, which comes of self-mastery, is an even more important condition for the highest work. The elevation of the ideals of life on which this depends, is due on the one side to political and economic causes, and on the other to personal and religious influences; among which the influence of the mother in early childhood is supreme. IV, v, 5, 6.

Influence of occupation.

§ 5. Bodily and mental health and strength are much influenced by occupation.[1] At the beginning of this century the conditions of factory work were needlessly unhealthy and oppressive for all, and especially for young children. But Factory and Education Acts have removed the worst of these evils from factories; though many of them still linger about domestic industries and the smaller workshops.

The higher wages, the greater intelligence, and the better medical facilities of townspeople should cause infant mortality to be much lower among them than in the country. But it is generally higher, especially where there are many mothers who neglect their family duties in order to earn money wages.

Influence of town life.

§ 6. In almost all countries there is a constant migration towards the towns.[2] The large towns and especially London absorb the

England a disproportionately large share of the best energy and enterprise is to be found among those who were born elsewhere.

But change may be carried to excess; and when population shifts so rapidly, that a man is always shaking himself loose from his reputation, he loses some of the best external aids to the formation of a high moral character. The extreme hopefulness and restlessness of those who wander to new countries lead to much waste of effort in half acquiring technical skill, and half finishing tasks which are speedily abandoned in favour of some new occupation.

[1] The rate of mortality is low among ministers of religion and schoolmasters; among the agricultural classes, and in some other industries such as those of wheelwrights, shipwrights and coal-miners. It is high in lead and tin mining, in file-making and earthenware manufacture. But neither these nor any other regular trade show as high a rate of mortality as is found among London general labourers and costermongers; while the highest of all is that of servants in inns. Such occupations are not directly injurious to health, but they attract those who are weak in physique and in character and they encourage irregular habits. A good account of the influence of occupation on death-rates is given in the supplement to the forty-fifth (1885) Annual Report of the Registrar-General, pp. xxv–lxiii. See also Farr's *Vital Statistics*, pp. 392–411, Humphreys' paper on *Class Mortality Statistics* in the *Statistical Journal* for June 1887, and the literature of the Factory Acts generally.

[2] Davenant (*Balance of Trade*, A.D. 1699, p. 20), following Gregory King, proves that according to official figures London has an excess of deaths over births of 2000 a year, but an immigration of 5000; which is more than half of what he calculates, by a rather risky method, to be the true net increase of the population of the country. He reckons that 530,000 people live in London, 870,000 in the other cities and market towns, and 4,100,000 in villages and hamlets. Compare these figures with the census of 1901 for England and Wales; where we find London with a population of over 4,500,000; five more towns with an average of over 500,000; and sixty-nine more exceeding 50,000 with an average of over 100,000. Nor is this all: for many suburbs whose population is not counted in, are often really parts of the big towns; and in some cases the suburbs of several adjacent towns run into one another, making them all into one gigantic, though rather scattered town. A suburb of Manchester is counted as a large town with 220,000 inhabitants; and the same is true of West

IV, v, 6. very best blood from all the rest of England; the most enterprising, the most highly gifted, those with the highest *physique* and the strongest characters go there to find scope for their abilities. An increasing number of those who are most capable and have most strength of character, live in suburbs, where excellent systems of drainage, water supply and lighting, together with good schools and opportunities for open air play, give conditions at least as conducive to vigour as are to be found in the country; and though there are still many town districts only a little less injurious to vitality than were large towns generally some time ago, yet on the whole the increasing density of population seems to be for the present a diminishing source of danger. The recent rapid growth of facilities for living far from the chief centres of industry and trade must indeed slacken in time. But there seems no sign of any slackening in the movement of industries outwards to suburbs and even to new Garden Cities to seek and to bring with them vigorous workers.

Statistical averages are indeed unduly favourable to urban conditions, partly because many of the town influences which lower vigour do not much affect mortality; and partly because the majority of immigrants into the towns are in the full strength of youth, and of more than average energy and courage; while young people whose parents live in the country generally go home when they become seriously ill.[1]

Ham, a suburb of London with 275,000. The boundaries of some large towns are extended at irregular intervals to include such suburbs: and consequently the true population of a large town may be growing fast, while its nominal population grows slowly or even recedes, and then suddenly leaps forwards. Thus the nominal population of Liverpool was 552,000 in 1881; 518,000 in 1891, and 685,000 in 1901.

Similar changes are taking place elsewhere. Thus the population of Paris has grown twelve times as fast during the nineteenth century as that of France. The towns of Germany are increasing at the expense of the country by one half per cent. of the population yearly. In the United States there was in 1800 no town with more than 75,000 inhabitants; in 1905 there were three which together contained more than 7,000,000 and eleven more with above 300,000 each. More than a third of the population of Victoria are collected in Melbourne.

It must be recollected that the characteristics of town life increase in intensity for good and for evil with every increase in the size of a town, and its suburbs. Fresh country air has to pass over many more sources of noisome vapour before it reaches the average Londoner than before it reaches the average inhabitant of a small town. The Londoner has generally to go far before he can reach the freedom and the restful sounds and sights of the country. London therefore with 4,500,000 inhabitants adds to the urban character of England's life far more than a hundred times as much as a town of 45,000 inhabitants.

[1] For reasons of this kind Welton (*Statistical Journal*, 1897) makes the extreme proposal to omit all persons between 15 and 35 years of age in comparing the rates of mortality in different towns. The mortality of females in London between the ages of fifteen and thirty-five is, chiefly for this reason, abnormally low. If however a town has a stationary population its vital statistics are more easily interpreted; and selecting Coventry as a typical town, Galton has calculated that the adult children of artisan townsfolk are little more than half as numerous as those of labouring people who live in healthy country districts. When a place is decaying, the young and strong and hearty drift away from it; leaving the old and the infirm behind them, and consequently the birth-rate is generally low. On the other hand, a centre of industry

IV, v, 7.

There is no better use for public and private money than in providing public parks and playgrounds in large cities, in contracting with railways to increase the number of the workmen's trains run by them, and in helping those of the working classes who are willing to leave the large towns to do so, and to take their industries with them.[1]

Nature left to herself tends to weed out the weak, but man has interfered.

§ 7. And there are yet other causes for anxiety. For there is some partial arrest of that selective influence of struggle and competition which in the earlier stages of civilization caused those who were strongest and most vigorous to leave the largest progeny behind them; and to which, more than any other single cause, the progress of the human race is due. In the later stages of civilization the rule has indeed long been that the upper classes marry late, and in consequence have fewer children than the working classes: but this has been compensated for by the fact that among the working classes themselves the old rule was held; and the vigour of the nation that is tending to be damped out among the upper classes is thus replenished by the fresh stream of strength that is constantly welling up from below. But in France for a long time, and recently in America, and England, some of the abler and more intelligent of the working class population have shown signs of a disinclination to have large families; and this is a source of danger.[2]

Thus there are increasing reasons for fearing, that while the progress of medical science and sanitation is saving from death a continually increasing number of the children of those who are feeble physically and mentally; many of those who are most thoughtful

that is attracting population is likely to have a very high birth-rate, because it has more than its share of people in the full vigour of life. This is especially the case in the coal and iron towns, partly because they do not suffer, as the textile towns do, from a deficiency of males; and partly because miners as a class marry early. In some of them, though the death-rate is high, the excess of the birth-rate over it exceeds 20 per thousand of the population. The death-rate is generally highest in towns of the second order, chiefly because their sanitary arrangements are not yet as good as those of the very largest towns.

Prof. Haycraft (*Darwinism and Race Progress*) argues in the opposite direction. He lays just stress on the dangers to the human race which would result from a diminution of those diseases, such as phthisis and scrofula, which attack chiefly people of weak constitution, and thus exercise a selective influence on the race, unless it were accompanied by corresponding improvements in other directions. But phthisis does not kill all its victims; there is some net gain in a diminution of its power of weakening them.

[1] See an article entitled "Where to House the London Poor" by the present writer in the *Contemporary Review*, Feb. 1884.

[2] In the Southern States of America, manual work became disgraceful to the white man; so that, if unable to have slaves himself, he led a paltry degenerate life, and seldom married. Again, on the Pacific Slope, there were at one time just grounds for fearing that all but highly skilled work would be left to the Chinese; and that the white men would live in an artificial way in which a family became a great expense. In this case Chinese lives would have been substituted for American, and the average quality of the human race would have been lowered.

IV, v, 8. and best endowed with energy, enterprise and self-control are tending to defer their marriages and in other ways to limit the number of children whom they leave behind them. The motive is sometimes selfish, and perhaps it is best that hard and frivolous people should leave but few descendants of their own type. But more often it is a desire to secure a good social position for their children. This desire contains many elements that fall short of the highest ideals of human aims, and in some cases, a few that are distinctly base; but after all it has been one of the chief factors of progress, and those who are affected by it include many of those whose children would probably be among the best and strongest of the race.

The State gains much from large families of healthy children.

It must be remembered that the members of a large family educate one another, they are usually more genial and bright, often more vigorous in every way than the members of a small family. Partly, no doubt, this is because their parents were of unusual vigour; and for a like reason they in their turn are likely to have large and vigorous families. The progress of the race is due to a much greater extent than appears at first sight to the descendants of a few exceptionally large and vigorous families.

The evils of infant mortality.

But on the other hand there is no doubt that the parents can often do better in many ways for a small family than a large one. Other things being equal, an increase in the number of children who are born causes an increase of infantile mortality; and that is an unmixed evil. The birth of children who die early from want of care and adequate means is a useless strain to the mother and an injury to the rest of the family.[1]

Practical conclusion.

§ 8. There are other considerations of which account ought to be taken; but so far as the points discussed in this chapter are concerned, it seems *primâ facie* advisable that people should not bring children into the world till they can see their way to giving them at least as good an education both physical and mental as they themselves had; and that it is best to marry moderately early provided there is sufficient self-control to keep the family within the requisite bounds without transgressing moral laws. The general adoption of

[1] The extent of the infant mortality that arises from preventable causes may be inferred from the facts that the percentage of deaths under one year of age to births is generally about a third as much again in urban as in rural districts; and yet in many urban districts which have a well-to-do population it is lower than the average for the whole country (*Registrar-General's Report for* 1905, pp. xlii–xlv). A few years ago it was found that, while the annual death-rate of children under five years of age was only about two per cent. in the families of peers and was less than three per cent. for the whole of the upper classes, it was between six and seven per cent. for the whole of England. On the other hand Prof. Leroy Beaulieu says that in France the parents of but one or two children are apt to indulge them, and be over-careful about them to the detriment of their boldness, enterprise and endurance. (See *Statistical Journal*, Vol. 54, pp. 378, 9.)

these principles of action, combined with an adequate provision of fresh air and of healthy play for our town populations, could hardly fail to cause the strength and vigour of the race to improve. And we shall presently find reasons for believing that if the strength and vigour of the race improves, the increase of numbers will not for a long time to come cause a diminution of the average real income of the people.

The swaying to-and-fro of the forces of good and evil.

Thus then the progress of knowledge, and in particular of medical science, the ever-growing activity and wisdom of Government in all matters relating to health, and the increase of material wealth, all tend to lessen mortality and to increase health and strength, and to lengthen life. On the other hand, vitality is lowered and the death-rate raised by the rapid increase of town life, and by the tendency of the higher strains of the population to marry later and to have fewer children than the lower. If the former set of causes were alone in action, but so regulated as to avoid the danger of over-population, it is probable that man would quickly rise to a physical and mental excellence superior to any that the world has yet known; while if the latter set acted unchecked, he would speedily degenerate.

The former slightly preponderate

As it is, the two sets hold one another very nearly in balance, the former slightly preponderating. While the population of England is growing nearly as fast as ever, those who are out of health in body or mind are certainly not an increasing part of the whole: the rest are much better fed and clothed, and, except in overcrowded industrial districts, are generally growing in strength. The average duration of life both for men and women has been increasing steadily for many years.

CHAPTER VI

INDUSTRIAL TRAINING

§ 1. HAVING discussed the causes which govern the growth of a numerous and vigorous population, we have next to consider the training that is required to develop its industrial efficiency.

The form which natural vigour takes depends largely on training.

The natural vigour that enables a man to attain great success in any one pursuit would generally have served him in good stead in almost any other. But there are exceptions. Some people, for instance, seem to be fitted from birth for an artistic career, and for no other; and occasionally a man of great practical genius is found to be almost devoid of artistic sensibility. But a race that has great nervous strength seems generally able, under favourable conditions, to develop in the course of a few generations ability of almost any kind that it holds in specially high esteem. A race that has acquired vigour in war or in the ruder forms of industry sometimes gains intellectual and artistic power of a high order very quickly; and nearly every literary and artistic epoch of classical and mediæval times has been due to a people of great nervous strength, who have been brought into contact with noble thoughts before they have acquired much taste for artificial comforts and luxuries.

The defects of our own age are apt to be over-estimated.

The growth of this taste in our own age has prevented us from taking full advantage of the opportunities our largely increased resources give us of consecrating the greater part of the highest abilities of the race to the highest aims. But perhaps the intellectual vigour of the age appears less than it really is, in consequence of the growth of scientific pursuits. For in art and literature success is often achieved while genius still wears the fascinating aspect of youth; but in modern science so much knowledge is required for originality, that before a student can make his mark in the world, his mind has often lost the first bloom of its freshness; and further the real value of his work is not often patent to the multitude as that of a picture or poem generally is.[1] In the same way the solid

[1] In this connection it is worth while to notice that the full importance of an epoch-making idea is often not perceived in the generation in which it is made: it starts the thoughts of the world on a new track, but the change of direction is not obvious until the turning-point has been left some way behind. In the same way the mechanical inventions of every age are apt to be underrated relatively to those of earlier times. For a new discovery is seldom fully effective for practical purposes

qualities of the modern machine-tending artisan are rated more cheaply than the lighter virtues of the mediæval handicraftsman. This is partly because we are apt to regard as commonplace those excellences which are common in our own time; and to overlook the fact that the term "unskilled labourer" is constantly changing its meaning.

Skilled and unskilled labour.

§ 2. Very backward races are unable to keep on at any kind of work for a long time; and even the simplest form of what we regard as unskilled work is skilled work relatively to them; for they have not the requisite assiduity, and they can acquire it only by a long course of training. But where education is universal, an occupation may fairly be classed as unskilled, though it requires a knowledge of reading and writing. Again, in districts in which manufactures have long been domiciled, a habit of responsibility, of carefulness and promptitude in handling expensive machinery and materials becomes the common property of all; and then much of the work of tending machinery is said to be entirely mechanical and unskilled, and to call forth no human faculty that is worthy of esteem. But in fact it is probable that not one-tenth of the present populations of the world have the mental and moral faculties, the intelligence, and the self-control that are required for it: perhaps not one-half could be made to do the work well by steady training for two generations. Even of a manufacturing population only a small part are capable of doing many of the tasks that appear at first sight to be entirely monotonous. Machine-weaving, for instance, simple as it seems, is divided into higher and lower grades; and most of those who work in the lower grades have not "the stuff in them" that is required for weaving with several colours. And the differences are even great in industries that deal with hard materials, wood, metals, or ceramics.

Skill with which we are familiar we often do not recognize as skill.

Mere manual skill is losing importance relatively to general intelligence and vigour of character.

Some kinds of manual work require long-continued practice in one set of operations, but these cases are not very common, and they are becoming rarer: for machinery is constantly taking over work that requires manual skill of this kind. It is indeed true that a general command over the use of one's fingers is a very important element of industrial efficiency; but this is the result chiefly of nervous strength, and self-mastery. It is of course developed by training, but the greater part of this may be of a general character

till many minor improvements and subsidiary discoveries have gathered themselves around it: an invention that makes an epoch is very often a generation older than the epoch which it makes. Thus it is that each generation seems to be chiefly occupied in working out the thoughts of the preceding one; while the full importance of its own thoughts is as yet not clearly seen.

IV, VI, 3. and not special to the particular occupation; just as a good cricketer soon learns to play tennis well, so a skilled artisan can often move into other trades without any great and lasting loss of efficiency.

Manual skill that is so specialized that it is quite incapable of being transferred from one occupation to another is becoming steadily a less and less important factor in production. Putting aside for the present the faculties of artistic perception and artistic creation, we may say that what makes one occupation higher than another, what makes the workers of one town or country more efficient than those of another, is chiefly a superiority in general sagacity and energy which are not specialized to any one occupation.

To be able to bear in mind many things at a time, to have everything ready when wanted, to act promptly and show resource when anything goes wrong, to accommodate oneself quickly to changes in detail of the work done, to be steady and trustworthy, to have always a reserve of force which will come out in emergency, these are the qualities which make a great industrial people. They are not peculiar to any occupation, but are wanted in all; and if they cannot always be easily transferred from one trade to other kindred trades, the chief reason is that they require to be supplemented by some knowledge of materials and familiarity with special processes.

General and Specialised ability.

We may then use the term *general ability* to denote those faculties and that general knowledge and intelligence which are in varying degrees the common property of all the higher grades of industry: while that manual dexterity and that acquaintance with particular materials and processes which are required for the special purposes of individual trades may be classed as *specialized ability*.

The causes that determine the supply of general ability.

The home.

§ **3.** General ability depends largely on the surroundings of childhood and youth. In this the first and far the most powerful influence is that of the mother.[1] Next comes the influence of the father, of other children, and in some cases of servants.[2] As years pass on the child of the working man learns a great deal from what he sees and hears going on around him; and when we inquire into

[1] According to Galton the statement that all great men have had great mothers goes too far: but that shows only that the mother's influence does not outweigh all others; not that it is not greater than any one of them. He says that the mother's influence is most easily traceable among theologians and men of science, because an earnest mother leads her child to feel deeply about great things; and a thoughtful mother does not repress, but encourages that childish curiosity which is the raw material of scientific habits of thought.

[2] There are many fine natures among domestic servants. But those who live in very rich houses are apt to get self-indulgent habits, to overestimate the importance of wealth, and generally to put the lower aims of life above the higher, in a way that is not common with independent working people. The company in which the children of some of our best houses spend much of their time, is less ennobling than that of the average cottage. Yet in these very houses, no servant who is not specially qualified, is allowed to take charge of a young retriever or a young horse.

the advantages for starting in life which children of the well-to-do classes have over those of artisans, and which these in their turn have over the children of unskilled labourers, we shall have to consider these influences of home more in detail. But at present we may pass to consider the more general influences of school education.

School.

Little need be said of general education; though the influence even of that on industrial efficiency is greater than it appears. It is true that the children of the working classes must very often leave school, when they have but learnt the elements of reading, writing, arithmetic and drawing; and it is sometimes argued that part of the little time spent on these subjects would be better given to practical work. But the advance made at school is important not so much on its own account, as for the power of future advance which a school education gives. For a truly liberal general education adapts the mind to use its best faculties in business and to use business itself as a means of increasing culture; though it does not concern itself with the details of particular trades: that is left for technical education.[1]

Technical education.

§ 4. Technical education has in like manner raised its aims in recent years. It used to mean little more than imparting that manual dexterity and that elementary knowledge of machinery and processes which an intelligent lad quickly picks up for himself when his work has begun; though if he has learnt it beforehand, he can perhaps earn a few shillings more at starting than if he had been quite ignorant. But such so-called education does not develop faculties; it rather hinders them from being developed. A lad, who has picked up the knowledge for himself, has educated himself by so doing; and he is likely to make better progress in the future than one who has been taught in a school of this old-fashioned kind. Technical education is however outgrowing its mistakes; and is aiming, firstly, at giving a general command over the use of eyes and fingers (though there are signs that this work is being taken

[1] The absence of a careful general education for the children of the working classes has been hardly less detrimental to industrial progress than the narrow range of the old grammar-school education of the middle classes. Till recently indeed it was the only one by which the average schoolmaster could induce his pupils to use their minds in anything higher than the absorption of knowledge. It was therefore rightly called liberal, because it was the best that was to be had. But it failed in its aim of familiarizing the citizen with the great thoughts of antiquity; it was generally forgotten as soon as school-time was over; and it raised an injurious antagonism between business and culture. Now however the advance of knowledge is enabling us to use science and art to supplement the curriculum of the grammar-school, and to give to those who can afford it an education that develops their best faculties, and starts them on the track of thoughts which will most stimulate the higher activities of their minds in after-life. The time spent on learning to spell is almost wasted: if spelling and pronunciation are brought into harmony in the English language as in most others, about a year will be added to the effective school education without any additional cost.

IV, VI, 4. over by general education, to which it properly belongs); and secondly at imparting artistic skill and knowledge, and methods of investigation, which are useful in particular occupations, but are seldom properly acquired in the course of practical work. It is however to be remembered that every advance in the accuracy and versatility of automatic machinery narrows the range of manual work in which command over hand and eye is at a high premium; and that those faculties which are trained by general education in its best forms are ever rising in importance.[1]

The aims of English education reform.

According to the best English opinions, technical education for the higher ranks of industry should keep the aim of developing the faculties almost as constantly before it as general education does. It should rest on the same basis as a thorough general education, but should go on to work out in detail special branches of knowledge for the benefit of particular trades.[2] Our aim should be to add the scientific training in which the countries of Western Europe are ahead of us to that daring and restless energy and those practical instincts, which seldom flourish unless the best years of youth are spent in the workshop; recollecting always that whatever a youth learns for himself by direct experience in well-conducted works, teaches him more and stimulates his mental activity more than if it were taught him by a master in a technical school with model instruments.[3]

Apprenticeship.

The old apprenticeship system is not exactly suited to modern conditions and it has fallen into disuse; but a substitute for it is wanted. Within the last few years many of the ablest manufacturers have begun to set the fashion of making their sons work through every stage in succession of the business they will ultimately

[1] As Nasmyth says; if a lad, having dropped two peas at random on a table, can readily put a third pea midway in a line between them, he is on the way to become a good mechanic. Command over eye and hand is gained in the ordinary English games, no less than in the playful work of the Kindergarten. Drawing has always been on the border line between work and play.

[2] One of the weakest points of technical education is that it does not educate the sense of proportion and the desire for simplicity of detail. The English, and to an even greater extent, the Americans, have acquired in actual business the faculty of rejecting intricacies in machinery and processes, which are not worth what they cost, and practical instinct of this kind often enables them to succeed in competition with Continental rivals who are much better educated.

[3] A good plan is that of spending the six winter months of several years after leaving school in learning science in College, and the six summer months as articled pupils in large workshops. The present writer introduced this plan about forty years ago at University College, Bristol (now the University of Bristol). But it has practical difficulties which can be overcome only by the cordial and generous co-operation of the heads of large firms with the College authorities. Another excellent plan is that adopted in the school attached to the works of Messrs. Mather and Platt at Manchester. "The drawings made in the school are of work actually in progress in the shops. One day the teacher gives the necessary explanations and calculations, and the next day the scholars see, as it were on the anvil, the very thing which has been the subject of his lecture."

have to control; but this splendid education can be had only by a few. So many and various are the branches of any great modern industry that it would be impossible for the employers to undertake, as they used to do, that every youth committed to their care should learn all; and indeed a lad of ordinary ability would be bewildered by the attempt. But it does not seem impracticable to revive the apprenticeship system in a modified form.[1]

Inventions in England and other countries.

The great epoch-making inventions in industry came till recently almost exclusively from England. But now other nations are joining in the race. The excellence of the common schools of the Americans, the variety of their lives, the interchange of ideas between different races among them, and the peculiar conditions of their agriculture have developed a restless spirit of inquiry; while technical education is now being pushed on with great vigour. On the other hand, the diffusion of scientific knowledge among the middle and even the working classes of Germany, combined with their familiarity with modern languages and their habits of travelling in pursuit of instruction, has enabled them to keep up with English and American mechanics and to take the lead in many of the applications of chemistry to business.[2]

A high education will increase the efficiency of the lower grades of industry

§ 5. It is true that there are many kinds of work which can be done as efficiently by an uneducated as by an educated workman: and that the higher branches of education are of little direct use except to employers and foremen and a comparatively small number of artisans. But a good education confers great indirect benefits even on the ordinary workman. It stimulates his mental activity;

[1] The employer binds himself to see that the apprentice is thoroughly taught in the workshop all the subdivisions of one great division of his trade, instead of letting him learn only one of these subdivisions, as too often happens now. The apprentice's training would then often be as broad as if he had been taught the whole of the trade as it existed a few generations ago; and it might be supplemented by a theoretical knowledge of all branches of the trade, acquired in a technical school. Something resembling the old apprenticeship system has recently come into vogue for young Englishmen who desire to learn the business of farming under the peculiar conditions of a new country: and there are some signs that the plan may be extended to the business of farming in this country, for which it is in many respects admirably adapted. But there remains a great deal of education suitable to the farmer and to the farm-labourer which can best be given in agricultural colleges and dairy schools.

Meanwhile many great agencies for the technical education of adults are being rapidly developed, such as public exhibitions, trade associations and congresses, and trade journals. Each of them has its own work to do. In agriculture and some other trades the greatest aid to progress is perhaps found in public shows. But those industries, which are more advanced and in the hands of persons of studious habits, owe more to the diffusion of practical and scientific knowledge by trade journals; which, aided by changes in the methods of industry and also in its social conditions, are breaking up trade secrets and helping men of small means in competition with their richer rivals.

[2] The heads of almost every progressive firm on the Continent have carefully studied processes and machinery in foreign lands. The English are great travellers; but partly perhaps on account of their ignorance of other languages they seem hardly to set enough store on the technical education that can be gained by the wise use of travel.

IV, vi, 5. it fosters in him a habit of wise inquisitiveness; it makes him more intelligent, more ready, more trustworthy in his ordinary work; it raises the tone of his life in working hours and out of working hours; it is thus an important means towards the production of material wealth; at the same time that, regarded as an end in itself, it is inferior to none of those which the production of material wealth can be made to subserve.

indirectly rather than directly.

We must however look in another direction for a part, perhaps the greater part, of the immediate economic gain which the nation may derive from an improvement in the general and technical education of the mass of the people. We must look not so much at those who stay in the rank and file of the working classes, as at those who rise from a humble birth to join the higher ranks of skilled artisans, to become foremen or employers, to advance the boundaries of science, or possibly to add to the national wealth in art and literature.

Much of the best natural ability in the nation is born among the working classes, and too often runs to waste now.

The laws which govern the birth of genius are inscrutable. It is probable that the percentage of children of the working classes who are endowed with natural abilities of the highest order is not so great as that of the children of people who have attained or have inherited a higher position in society. But since the manual labour classes are four or five times as numerous as all other classes put together, it is not unlikely that more than half the best natural genius that is born into the country belongs to them; and of this a great part is fruitless for want of opportunity. There is no extravagance more prejudicial to the growth of national wealth than that wasteful negligence which allows genius that happens to be born of lowly parentage to expend itself in lowly work. No change would conduce so much to a rapid increase of material wealth as an improvement in our schools, and especially those of the middle grades, provided it be combined with an extensive system of scholarships, which will enable the clever son of a working man to rise gradually from school to school till he has the best theoretical and practical education which the age can give.

To the abilities of children of the working classes may be ascribed the greater part of the success of the free towns in the Middle Ages and of Scotland in recent times. Even within England itself there is a lesson of the same kind to be learnt: progress is most rapid in those parts of the country in which the greatest proportion of the leaders of industry are the sons of working men. For instance, the beginning of the manufacturing era found social distinctions more closely marked and more firmly established in the South than in the

North of England. In the South something of a spirit of caste has held back the working men and the sons of working men from rising to posts of command; and the old established families have been wanting in that elasticity and freshness of mind which no social advantages can supply, and which comes only from natural gifts. This spirit of caste, and this deficiency of new blood among the leaders of industry, have mutually sustained one another; and there are not a few towns in the South of England whose decadence within living memory can be traced in a great measure to this cause.

Education in art.

§ 6. Education in art stands on a somewhat different footing from education in hard thinking: for while the latter nearly always strengthens the character, the former not unfrequently fails to do this. Nevertheless the development of the artistic faculties of the people is in itself an aim of the very highest importance, and is becoming a chief factor of industrial efficiency.

We are here concerned almost exclusively with those branches of art which appeal to the eye. For though literature and music contribute as much and more to the fulness of life, yet their development does not directly affect, and does not depend upon, the methods of business, the processes of manufacture and the skill of artisans.

Where social and industrial change in slow art is guided by matured instincts,

The artisan of Europe in the Middle Ages, and of eastern countries now, has perhaps obtained credit for more originality than he has really possessed. Eastern carpets, for instance, are full of grand conceptions: but if we examine a great many examples of the art of any one place, selected perhaps from the work of several centuries, we often find very little variety in their fundamental ideas. But in the modern era of rapid changes—some caused by fashion and some by the beneficial movements of industrial and social progress—everyone feels free to make a new departure, everyone has to rely in the main on his own resources: there is no slowly matured public criticism to guide him.[1]

and attracts a large share of ability.

This is however not the only, perhaps not the chief disadvantage under which artistic design labours in our own age. There is no good reason for believing that the children of ordinary workmen in

[1] In fact every designer in a primitive age is governed by precedent: only very daring people depart from it; even they do not depart far, and their innovations are subjected to the test of experience, which, in the long run, is infallible. For though the crudest and most ridiculous fashions in art and in literature will be accepted by the people for a time at the bidding of their social superiors, nothing but true artistic excellence has enabled a ballad or a melody, a style of dress or a pattern of furniture to retain its popularity among a whole nation for many generations together. These innovations, then, which were inconsistent with the true spirit of art were suppressed, and those that were on the right track were retained, and became the starting-point for further progress; and thus traditional instincts played a great part in preserving the purity of the industrial arts in Oriental countries, and to a less extent in mediæval Europe.

IV, VI, 6. the middle Ages had more power of artistic origination than those of ordinary village carpenters or blacksmiths of to-day; but if one among ten thousand happened to have genius, it found vent in his work and was stimulated by the competition of the gilds and in other ways. But the modern artisan is apt to be occupied in the management of machinery; and though the faculties which he develops may be more solid and may help more in the long run towards the highest progress of the human race, than did the taste and fancy of his mediæval predecessor, yet they do not contribute directly towards the progress of art. And if he should find in himself a higher order of ability than among his fellows, he will probably endeavour to take a leading part in the management of a trades-union or some other society, or to collect together a little store of capital and to rise out of that trade in which he was educated. These are not ignoble aims; but his ambition would perhaps have been nobler and more fruitful of good to the world, if he had stayed in his old trade and striven to create works of beauty which should live after he had gone.

But in modern times design is almost limited to a narrow profession

It must however be admitted that he would have great difficulties in doing this. The shortness of the time which we allow ourselves for changes in the arts of decoration is scarcely a greater evil than the width of the area of the world over which they are spread; for that causes a further distraction of the hasty and hurried efforts of the designer, by compelling him to be always watching the world movements of the supply of and demand for art products. This is a task for which the artisan, who works with his own hands, is not well fitted; and in consequence now-a-days the ordinary artisan finds it best to follow and not to lead. Even the supreme skill of the Lyons weaver shows itself now almost exclusively in an inherited power of delicate manipulation, and fine perception of colour, that enable him to carry out perfectly the ideas of professional designers.

which is forced to pay court to fashion.

Increasing wealth is enabling people to buy things of all kinds to suit the fancy, with but a secondary regard to their powers of wearing; so that in all kinds of clothing and furniture it is every day more true that it is the pattern which sells the things. The influence of the late William Morris and others, combined with the lead which many English designers have derived from Oriental and especially Persian and Indian masters of colour is acknowledged by Frenchmen themselves to have attained the first rank for certain classes of English fabrics and decorative products. But in other directions France is supreme. Some English manufacturers who

hold their own against the world would, it is said, be driven out of the market if they had to depend on English patterns. This is partly due to the fact that Paris having the lead in fashions, as the result of an inherited quick and subtle taste in women's dress, a Parisian design is likely to be in harmony with the coming fashions and to sell better than a design of equal intrinsic worth from elsewhere.[1] IV, VI, 7.

Technical education, then, though it cannot add much directly to the supply of genius in art, any more than it can in science or in business, can yet save much natural artistic genius from running to waste; and it is called on to do this all the more because the training that was given by the older forms of handicraft can never be revived on a large scale.[2]

Education a national investment.

§ 7. We may then conclude that the wisdom of expending public and private funds on education is not to be measured by its direct fruits alone. It will be profitable as a mere investment, to give the masses of the people much greater opportunities than they can generally avail themselves of. For by this means many, who would have died unknown, are enabled to get the start needed for bringing out their latent abilities. And the economic value of one great industrial genius is sufficient to cover the expenses of the education of a whole town; for one new idea, such as Bessemer's chief invention, adds as much to England's productive power as the labour of a hundred thousand men. Less direct, but not less in importance, is the aid given to production by medical discoveries such as those of Jenner or Pasteur, which increase our health and working power; and again by scientific work such as that of mathe-

[1] French designers find it best to live in Paris: if they stay for long out of contact with the central movements of fashion they seem to fall behindhand. Most of them have been educated as artists, but have failed of their highest ambition. It is only in exceptional cases, as for instance for the Sèvres china, that those who have succeeded as artists find it worth their while to design. Englishmen can, however, hold their own in designing for Oriental markets, and there is evidence that the English are at least equal to the French in originality, though they are inferior in quickness in seeing how to group forms and colours so as to obtain an effective result. (See the *Report on Technical Education*, Vol. I. pp. 256, 261, 324, 325 and Vol. III. pp. 151, 152, 202, 203, 211 and *passim*.) It is probable that the profession of the modern designer has not yet risen to the best position which it is capable of holding. For it has been to a disproportionate extent under the influence of one nation; and that nation is one whose works in the highest branches of art have seldom borne to be transplanted. They have indeed often been applauded and imitated at the time by other nations, but they have as yet seldom struck a key-note for the best work of later generations.

[2] The painters themselves have put on record in the portrait-galleries the fact that in mediaeval times, and even later, their art attracted a larger share of the best intellect than it does now; when the ambition of youth is tempted by the excitement of modern business, when its zeal for imperishable achievements finds a field in the discoveries of modern science, and, lastly, when a great deal of excellent talent is insensibly diverted from high aims by the ready pay to be got by hastily writing half-thoughts for periodical literature.

IV, VI, 8. matics or biology, even though many generations may pass away before it bears visible fruit in greater material wellbeing. All that is spent during many years in opening the means of higher education to the masses would be well paid for if it called out one more Newton or Darwin, Shakespeare or Beethoven.

There are few practical problems in which the economist has a more direct interest than those relating to the principles on which the expense of the education of children should be divided between the State and the parents. But we must now consider the conditions that determine the power and the will of the parents to bear their share of the expense, whatever it may be.

and a duty of parents.

Most parents are willing enough to do for their children what their own parents did for them; and perhaps even to go a little beyond it if they find themselves among neighbours who happen to have a rather higher standard. But to do more than this requires, in addition to the moral qualities of unselfishness and a warmth of affection that are perhaps not rare, a certain habit of mind which is as yet not very common. It requires the habit of distinctly realizing the future, of regarding a distant event as of nearly the same importance as if it were close at hand (discounting the future at a low rate of interest); this habit is at once a chief product and a chief cause of civilization, and is seldom fully developed except among the middle and upper classes of the more cultivated nations.

Mobility between grades and within grades.

§ 8. Parents generally bring up their children to occupations in their own grade, and therefore the total supply of labour in any grade in one generation is in a great measure determined by the numbers in that grade in the preceding generation, yet within the grade itself there is greater mobility. If the advantages of any one occupation in it rise above the average, there is a quick influx of youth from other occupations within the grade. The vertical movement from one grade to another is seldom very rapid or on a very large scale; but, when the advantages of a grade have risen relatively to the difficulty of the work required of it, many small streams of labour, both youthful and adult, will begin to flow towards it; and though none of them may be very large, they will together have a sufficient volume to satisfy before long the increased demand for labour in that grade.

Provisional conclusion.

We must defer to a later stage a fuller discussion of the obstacles which the conditions of any place and time oppose to the free mobility of labour, and also of the inducements which they offer to anyone to change his occupation or to bring up his son to an occupation different from his own. But we have seen enough to conclude

that, other things being equal, an increase in the earnings that are to IV, vi, 8.
be got by labour increases its rate of growth; or, in other words, a rise in its demand price increases the supply of it. If the state of knowledge, and of ethical, social and domestic habits be given; then the vigour of the people as a whole if not their numbers, and both the numbers and vigour of any trade in particular, may be said to have a supply price in this sense, that there is a certain level of the demand price which will keep them stationary; that a higher price would cause them to increase, and that a lower price would cause them to decrease. Thus economic causes play a part in governing the growth of population as a whole as well as the supply of labour in any particular grade. But their influence on the numbers of the population as a whole is largely indirect; and is exerted by way of the ethical, social and domestic habits of life. For these habits are themselves influenced by economic causes deeply, though slowly, and in ways some of which are difficult to trace, and impossible to predict.[1]

[1] Mill was so much impressed by the difficulties that beset a parent in the attempt to bring up his son to an occupation widely different in character from his own, that he said (*Principles*, II. xiv. 2):—" So complete, indeed, has hitherto been the separation, so strongly marked the line of demarcation, between the different grades of labourers, as to be almost equivalent to an hereditary distinction of caste; each employment being chiefly recruited from the children of those already employed in it, or in employments of the same rank with it in social estimation, or from the children of persons who, if originally of a lower rank, have succeeded in raising themselves by their exertions. The liberal professions are mostly supplied by the sons of either the professional or the idle classes: the more highly skilled manual employments are filled up from the sons of skilled artisans or the class of tradesmen who rank with them: the lower classes of skilled employments are in a similar case; and unskilled labourers, with occasional exceptions, remain from father to son in their pristine condition. Consequently the wages of each class have hitherto been regulated by the increase of its own population, rather than that of the general population of the country." But he goes on, " The changes, however, now so rapidly taking place in usages and ideas are undermining all these distinctions."

His prescience has been vindicated by the progress of change since he wrote. The broad lines of division which he pointed out have been almost obliterated by the rapid action of those causes which, as we saw earlier in the chapter, are reducing the amount of skill and ability required in some occupations and increasing it in others. We cannot any longer regard different occupations as distributed among four great planes; but we may perhaps think of them as resembling a long flight of steps of unequal breadth, some of them being so broad as to act as landing stages. Or even better still we might picture to ourselves two flights of stairs, one representing the " hard-handed industries " and the other " the soft-handed industries "; because the vertical division between these two is in fact as broad and as clearly marked as the horizontal division between any two grades.

Mill's classification had lost a great part of its value when Cairnes adopted it (*Leading Principles*, p. 72). A classification more suited to our existing conditions is offered by Giddings (*Political Science Quarterly*, Vol. ii. pp. 69–71). It is open to the objection that it draws broad lines of division where nature has made no broad lines; but it is perhaps as good as any division of industry into four grades can be. His divisions are (i) *automatic manual labour*, including common labourers and machine tenders; (ii) *responsible manual labour*, including those who can be entrusted with some responsibility and labour of self-direction; (iii) *automatic brain workers*, such as book-keepers, and (iv) *responsible brain workers*, including the superintendents and directors.

The conditions and methods of the large and incessant movement of the population upwards and downwards from grade to grade are studied more fully below, VI. iv. v. and vii.

IV, vi, 8. The growing demand for boys to run errands, and to do other work that has no educational value, has increased the danger that parents may send their sons into avenues that have no outlook for good employment in later years: and something is being done by public agency, and more by the devotion and energy of men and women in unofficial association, in giving out notes of warning against such "blind alley" occupations, and assisting lads to prepare themselves for skilled work. These efforts may be of great national value. But care must be taken that this guidance and help is as accessible to the higher strains of the working class population when in need of it as to the lower; lest the race should degenerate.

CHAPTER VII

THE GROWTH OF WEALTH

§ 1. In this chapter it is not necessary to distinguish the points of view in which wealth is regarded as the object of consumption and as an agent of production; we are concerned with the growth of wealth simply, and we have no need to emphasize its uses as capital.

Forms of wealth among barbarous peoples.

The earliest forms of wealth were probably implements for hunting and fishing, and personal ornaments; and, in cold countries, clothing and huts.[1] During this stage the domestication of animals began; but at first they were probably cared for chiefly for their own sake, because they were beautiful, and it was pleasant to have them; they were, like articles of personal ornament, desired because of the immediate gratification to be derived from their possession rather than as a provision against future needs.[2] Gradually the herds of domesticated animals increased; and during the pastoral stage they were at once the pleasure and the pride of their possessors, the outward emblems of social rank, and by far the most important store of wealth accumulated as a provision against future needs.

Forms of wealth in early stages of civilization.

As numbers thickened and the people settled down to agriculture, cultivated land took the first place in the inventory of wealth; and that part of the value of the land which was due to improvements (among which wells held a conspicuous place) became the chief element of capital, in the narrower sense of the term. Next in importance came houses, domesticated animals, and in some places boats and ships; but the implements of production, whether for use in agriculture or in domestic manufactures, remained for a long time of little value. In some places, however, precious stones and the precious metals in various forms became early a leading object of

[1] A short but suggestive study of the growth of wealth in its early forms, and of the arts of life, is given in Tylor's *Anthropology*.

[2] Bagehot (*Economic Studies*, pp. 163–5), after quoting the evidence which Galton has collected on the keeping of pet animals by savage tribes, points out that we find here a good illustration of the fact that however careless a savage race may be for the future, it cannot avoid making some provision for it. A bow, a fishing-net, which will do its work well in getting food for to-day, must be of service for many days to come: a horse or a canoe that will carry one well to-day, must be a stored-up source of many future enjoyments. The least provident of barbaric despots may raise a massive pile of buildings, because it is the most palpable proof of his present wealth and power.

IV, VII, 1.

desire and a recognized means of hoarding wealth; while, to say nothing of the palaces of monarchs, a large part of social wealth in many comparatively rude civilizations took the form of edifices for public purposes, chiefly religious, and of roads and bridges, of canals and irrigation works.

Until recently there was little use of expensive forms of auxiliary capital.

For some thousands of years these remained the chief forms of accumulated wealth. In towns indeed houses and household furniture took the first place, and stocks of the more expensive of raw materials counted for a good deal; but though the inhabitants of the towns had often more wealth per head than those of the country, their total numbers were small; and their aggregate wealth was very much less than that of the country. During all this time the only trade that used very expensive implements was the trade of carrying goods by water: the weaver's looms, the husbandman's ploughs and the blacksmith's anvils were of simple construction and were of little account beside the merchant's ships. But in the eighteenth century England inaugurated the era of expensive implements.

But in recent years they have increased very fast.

The implements of the English farmer had been rising slowly in value for a long time; but the progress was quickened in the eighteenth century. After a while the use first of water power and then of steam power caused the rapid substitution of expensive machinery for inexpensive hand tools in one department of production after another. As in earlier times the most expensive implements were ships and in some cases canals for navigation and irrigation, so now they are the means of locomotion in general;—railways and tramways, canals, docks and ships, telegraph and telephone systems and water-works: even gas-works might almost come under this head, on the ground that a great part of their plant is devoted to distributing the gas. After these come mines and iron and chemical works, ship-building yards, printing-presses, and other large factories full of expensive machinery.

On whichever side we look we find that the progress and diffusion of knowledge are constantly leading to the adoption of new processes and new machinery which economize human effort on condition that some of the effort is spent a good while before the attainment of the ultimate ends to which it is directed. It is not easy to measure this progress exactly, because many modern industries had no counterpart in ancient times. But let us compare the past and present conditions of the four great industries the products of which have not changed their general character: viz. agriculture, the building, the cloth-making, and the carrying trades. In the first

two of these hand work still retains an important place: but even in them there is a great development of expensive machinery. Compare for instance the rude implements of an Indian Ryot even of to-day with the equipment of a progressive Lowland farmer;[1] and consider the brick-making, mortar-making, sawing, planing, moulding and slotting machines of a modern builder, his steam cranes and his electric light. And if we turn to the textile trades, or at least to those of them which make the simpler products, we find each operative in early times content with implements the cost of which was equivalent to but a few months of his labour; while in modern times it is estimated that for each man, woman and child employed there is a capital in plant alone of more than £200, or say the equivalent of five years' labour. Again the cost of a steam-ship is perhaps equivalent to the labour for fifteen years or more of those who work her; while a capital of about £1000,000,000 invested in railways in England and Wales is equivalent to the work for more than twenty years of the 300,000 wage-earners employed on them.

And they are likely to continue to increase.

§ **2.** As civilization has progressed, man has always been developing new wants, and new and more expensive ways of gratifying them. The rate of progress has sometimes been slow, and occasionally there has even been a great retrograde movement; but now we are moving on at a rapid pace that grows quicker every year; and we cannot guess where it will stop. On every side further openings are sure to offer themselves, all of which will tend to change the character of our social and industrial life, and to enable us to turn to account vast stores of capital in providing new gratifications and new ways of economizing effort by expending it in anticipation of distant wants. There seems to be no good reason for believing that we are anywhere near a stationary state in which there will be no new important wants to be satisfied; in which there will be no more room for profitably investing present effort in providing for the future, and in which the accumulation of wealth will cease to have

[1] The farm implements for a first class Ryot family, including six or seven adult males, are a few light ploughs and hoes chiefly of wood, of the total value of about 13 rupees (Sir G. Phear, *Aryan Village*, p. 233) or the equivalent of their work for about a month; while the value of the machinery alone on a well equipped large modern arable farm amounts to £3 an acre (*Equipment of the Farm*, edited by J. C. Morton) or say a year's work for each person employed. They include steam-engines, trench, subsoil and ordinary ploughs, some to be worked by steam and some by horse power; various grubbers, harrows, rollers, clod-crushers, seed and manure drills, horse hoes, rakes, hay-making, mowing and reaping machines, steam or horse threshing, chaff cutting, turnip cutting, hay-pressing machines and a multitude of others. Meanwhile there is an increasing use of silos and covered yards, and constant improvements in the fittings of the dairy and other farm buildings, all of which give great economy of effort in the long run, but require a larger share of it to be spent in preparing the way for the direct work of the farmer in raising agricultural produce.

IV, VII, 3.

any reward. The whole history of man shows that his wants expand with the growth of his wealth and knowledge.[1]

And meanwhile there has been and probably will be a parallel increase in the power to accumulate.

And with the growth of openings for the investment of capital there is a constant increase in that surplus of production over the necessaries of life, which gives the power to save. When the arts of production were rude, there was very little surplus, except where a strong ruling race kept the subject masses hard at work on the bare necessaries of life, and where the climate was so mild that those necessaries were small and easily obtained. But every increase in the arts of production, and in the capital accumulated to assist and support labour in future production, increased the surplus out of which more wealth could be accumulated. After a time civilization became possible in temperate and even in cold climates; the increase of material wealth was possible under conditions which did not enervate the worker, and did not therefore destroy the foundations on which it rested.[2] Thus from step to step wealth and knowledge have grown, and with every step the power of saving wealth and extending knowledge has increased.

The slow and fitful development of the habit of providing for the future.

§ 3. The habit of distinctly realizing the future and providing for it has developed itself slowly and fitfully in the course of man's history. Travellers tell us of tribes who might double their resources and enjoyments without increasing their total labour, if they would only apply a little in advance the means that lie within their power and their knowledge; as, for instance, by fencing in their little plots of vegetables against the intrusion of wild animals.

But even this apathy is perhaps less strange than the wasteful-

[1] For instance, improvements which have recently been made in some American cities indicate that by a sufficient outlay of capital each house could be supplied with what it does require, and relieved of what it does not, much more effectively than now, so as to enable a large part of the population to live in towns and yet be free from many of the present evils of town life. The first step is to make under all the streets large tunnels, in which many pipes and wires can be laid side by side, and repaired when they get out of order, without any interruption of the general traffic and without great expense. Motive power, and possibly even heat, might then be generated at great distances from the towns (in some cases in coal-mines), and laid on wherever wanted. Soft water and spring water, and perhaps even sea water and ozonized air, might be laid on in separate pipes to nearly every house; while steam-pipes might be used for giving warmth in winter, and compressed air for lowering the heat of summer; or the heat might be supplied by gas of great heating power laid on in special pipes, while light was derived from gas specially suited for the purpose or from electricity; and every house might be in electric communication with the rest of the town. All unwholesome vapours, including those given off by any domestic fires which were still used, might be carried away by strong draughts through long conduits, to be purified by passing through large furnaces and thence away through huge chimneys into the higher air. To carry out such a scheme in the towns of England would require the outlay of a much larger capital than has been absorbed by our railways. This conjecture as to the ultimate course of town improvement may be wide of the truth; but it serves to indicate one of very many ways in which the experience of the past foreshadows broad openings for investing present effort in providing the means of satisfying our wants in the future.

[2] Comp. Appendix A.

ness that is found now among some classes in our own country. Cases are not rare of men who alternate between earning two or three pounds a week and being reduced to the verge of starvation: the utility of a shilling to them when they are in employment is less than that of a penny when they are out of it, and yet they never attempt to make provision for the time of need.[1] At the opposite extreme there are misers, in some of whom the passion for saving borders on insanity; while, even among peasant proprietors and some other classes, we meet not unfrequently with people who carry thrift so far as to stint themselves of necessaries, and to impair their power of future work. Thus they lose every way: they never really enjoy life; while the income which their stored-up wealth brings them is less than they would have got from the increase of their earning power, if they had invested in themselves the wealth that they have accumulated in a material form. IV, VII, 4.

In India, and to a less extent in Ireland, we find people who do indeed abstain from immediate enjoyment and save up considerable sums with great self-sacrifice, but spend all their savings in lavish festivities at funerals and marriages. They make intermittent provision for the near future, but scarcely any permanent provision for the distant future: the great engineering works by which their productive resources have been so much increased, have been made chiefly with the capital of the much less self-denying race of Englishmen.

Thus the causes which control the accumulation of wealth differ widely in different countries and different ages. They are not quite the same among any two races, and perhaps not even among any two social classes in the same race. They depend much on social and religious sanctions; and it is remarkable how, when the binding force of custom has been in any degree loosened, differences of personal character will cause neighbours brought up under like conditions to differ from one another more widely and more frequently in their habits of extravagance or thrift than in almost any other respect.

Security as a condition of saving.

§ 4. The thriftlessness of early times was in a great measure due to the want of security that those who made provision for the future would enjoy it: only those who were already wealthy were strong enough to hold what they had saved; the laborious and self-denying peasant who had heaped up a little store of wealth only to see it taken from him by a stronger hand, was a constant warning to his

[1] They "discount" future benefits (comp. Book III. ch. v. § 3) at the rate of many thousands per cent. per annum.

IV, VII, 5. neighbours to enjoy their pleasure and their rest when they could. The border country between England and Scotland made little progress so long as it was liable to incessant forays; there was very little saving by the French peasants in the eighteenth century when they could escape the plunder of the tax-gatherer only by appearing to be poor, or by Irish cottiers, who, on many estates, even forty years ago, were compelled to follow the same course in order to avoid the landlords' claims of exorbitant rents.

Insecurity of this kind has nearly passed away from the civilized world. But we are still suffering in England from the effects of the Poor-law which ruled at the beginning of last century, and which introduced a new form of insecurity for the working classes. For it arranged that part of their wages should, in effect, be given in the form of poor relief; and that this should be distributed among them in inverse proportion to their industry and thrift and forethought, so that many thought it foolish to make provision for the future. The traditions and instincts which were fostered by that evil experience are even now a great hindrance to the progress of the working classes; and the principle which nominally at least underlies the present Poor-law, that the State should take account only of destitution and not at all of merit, acts in the same direction, though with less force.

Insecurity of this kind also is being diminished: the growth of enlightened views as to the duties of the State and of private persons towards the poor, is tending to make it every day more true that those who have helped themselves and endeavoured to provide for their own future will be cared for by society better than the idle and the thoughtless. But the progress in this direction is still slow, and there remains much to be done yet.

The growth of a money-economy gives new temptations to extravagance,

§ 5. The growth of a money-economy and of modern habits of business does indeed hinder the accumulation of wealth by putting new temptations in the way of those who are inclined to live extravagantly. In old times if a man wanted a good house to live in he must build it himself; now he finds plenty of good houses to be hired at a rent. Formerly, if he wanted good beer he must have a good brew-house, now he can buy it more cheaply and better than he could brew it. Now he can borrow books from a library instead of buying them; and he can even furnish his house before he is ready to pay for his furniture. Thus in many ways the modern systems of buying and selling, and lending and borrowing, together with the growth of new wants, lead to new extravagances, and to a subordination of the interests of the future to those of the present.

But on the other hand, a money-economy increases the variety of the uses between which a person can distribute his future expenditure. A person who in a primitive state of society stores up some things against a future need, may find that after all he does not need those things as much as others which he has not stored up: and there are many future wants against which it is impossible to provide directly by storing up goods. But he who has stored up capital from which he derives a money income can buy what he will to meet his needs as they arise.[1]

but also a new certainty that savings will really provide what is wanted in the future.

Again, modern methods of business have brought with them opportunities for the safe investment of capital in such ways as to yield a revenue to persons who have no good opportunity of engaging in any business,—not even in that of agriculture, where the land will under some conditions act as a trustworthy savings-bank. These new opportunities have induced some people who would not otherwise have attempted it to put by something for their own old age. And, what has had a far greater effect on the growth of wealth, it has rendered it far easier for a man to provide a secure income for his wife and children after his death: for, after all, family affection is the main motive of saving.

And it has enabled people who have no faculty for business to reap the full fruits of saving.

§ 6. There are indeed some who find an intense pleasure in seeing their hoards of wealth grow up under their hands, with scarcely any thought for the happiness that may be got from its use by themselves or by others. They are prompted partly by the instincts of the chase, by the desire to outstrip their rivals; by the ambition to have shown ability in getting the wealth, and to acquire power and social position by its possession. And sometimes the force of habit, started when they were really in need of money, has given them, by a sort of reflex action, an artificial and unreasoning pleasure in amassing wealth for its own sake. But were it not for the family affections, many who now work hard and save carefully would not exert themselves to do more than secure a comfortable annuity for their own lives; either by purchase from an insurance company, or by arranging to spend every year, after they had retired from work, part of their capital as well as all their income. In the one case they would leave nothing behind them: in the other only provision for that part of their hoped-for old age, from which they had been cut off by death. That men labour and save chiefly for the sake of their families, and not for themselves, is shown by the fact that they seldom spend, after they have retired from work, more than the income that comes in from their savings, preferring to leave their

A few people save for their own sakes:

but the chief motive of saving is family affection.

[1] Comp. III. v. 2.

IV, VII, 7. stored-up wealth intact for their families; while in this country alone twenty millions a year are saved in the form of insurance policies and are available only after the death of those who save them.

A man can have no stronger stimulus to energy and enterprise than the hope of rising in life, and leaving his family to start from a higher round of the social ladder than that on which he began. It may even give him an over-mastering passion which reduces to insignificance the desire for ease, and for all ordinary pleasures, and sometimes even destroys in him the finer sensibilities and nobler aspirations. But, as is shown by the marvellous growth of wealth in America during the present generation, it makes him a mighty producer and accumulator of riches; unless indeed he is in too great a hurry to grasp the social position which his wealth will give him: for his ambition may then lead him into as great extravagance as could have been induced by an improvident and self-indulgent temperament.

The greatest savings are made by those who have been brought up on narrow means to stern hard work, who have retained their simple habits, in spite of success in business, and who nourish a contempt for showy expenditure and a desire to be found at their death richer than they had been thought to be. This type of character is frequent in the quieter parts of old but vigorous countries, and it was very common among the middle classes in the rural districts of England for more than a generation after the pressure of the great French war and the heavy taxes that lingered in its wake.

The source of accumulation is surplus income; whether that derived from capital,

§ **7.** Next, as to the sources of accumulation. The power to save depends on an excess of income over necessary expenditure; and this is greatest among the wealthy. In this country most of the larger incomes, but only a few of the smaller, are chiefly derived from capital. And, early in the present century, the commercial classes in England had much more saving habits than either the country gentlemen or the working classes. These causes combined to make English economists of the last generation regard savings as made almost exclusively from the profits of capital.

or rent, the earnings of professional men, and of hired workers.

But even in modern England rent and the earnings of professional men and hired workers are an important source of accumulation: and they have been the chief source of it in all the earlier stages of civilization.[1] Moreover, the middle and especially the professional classes have always denied themselves much in order to invest capital in the education of their children; while a great part of the wages

[1] Comp. *Principles of Political Economy*, by Richard Jones.

of the working classes is invested in the physical health and strength of their children. The older economists took too little account of the fact that human faculties are as important a means of production as any other kind of capital; and we may conclude, in opposition to them, that any change in the distribution of wealth which gives more to the wage receivers and less to the capitalists is likely, other things being equal, to hasten the increase of material production, and that it will not perceptibly retard the storing-up of material wealth. Of course other things would not be equal if the change were brought about by violent methods which gave a shock to public security. But a slight and temporary check to the accumulation of material wealth need not necessarily be an evil, even from a purely economic point of view, if, being made quietly and without disturbance, it provided better opportunities for the great mass of the people, increased their efficiency, and developed in them such habits of self-respect as to result in the growth of a much more efficient race of producers in the next generation. For then it might do more in the long-run to promote the growth of even material wealth than great additions to our stock of factories and steam-engines. IV, vii, 8.

The public accumulations of democracies.

A people among whom wealth is well distributed, and who have high ambitions, are likely to accumulate a great deal of public property; and the savings made in this form alone by some well-to-do democracies form no inconsiderable part of the best possessions which our own age has inherited from its predecessors. The growth of the co-operative movement in all its many forms, of building societies, friendly societies, trades-unions, of working men's savings-banks etc., shows that, even so far as the immediate accumulation of material wealth goes, the resources of the country are not, as the older economists assumed, entirely lost when they are spent in paying wages.[1]

Co-operation.

We must revert to the distribution of a commodity between present and deferred uses.

§ 8. Having looked at the development of the methods of saving and the accumulation of wealth, we may now return to that analysis of the relations between present and deferred gratifications, which we began from another point of view in our study of Demand.[2]

We there saw that anyone, who has a stock of a commodity which is applicable to several uses, endeavours to distribute it between them all in such a way as to give him the greatest satis-

[1] It must however be admitted that what passes by the name of public property is often only private wealth borrowed on a mortgage of future public revenue. Municipal gas-works for instance are not generally the results of public accumulations. They were built with wealth saved by private persons, and borrowed on public account.

[2] Above, III. v.

IV, VII, 8. faction. If he thinks he could obtain more satisfaction by transferring some of it from one use to another he will do so. If, therefore, he makes his distribution rightly, he stops in applying it to each several use at such a point that he gets an equal amount of good out of the application that he is only just induced to make of it to each separate use; (in other words, he distributes it between the different uses in such a way that it has the same marginal utility in each).

We saw, further, that the principle remains the same whether all the uses are present, or some are present and others deferred: but that in this latter case some new considerations enter, of which the chief are, firstly, that the deferring of a gratification necessarily introduces some uncertainty as to its ever being enjoyed; and secondly, that, as human nature is constituted, a present gratification is generally, though not always, preferred to a gratification that is expected to be equal to it, and is as certain as anything can be in human life.

A person may save, though he prefers present gratifications to future, and he does not increase his means by waiting.

A prudent person who thought that he would derive equal gratifications from equal means at all stages of his life, would perhaps endeavour to distribute his means equally over his whole life: and if he thought that there was a danger that his power of earning income at a future date would run short, he would certainly save some of his means for a future date. He would do this not only if he thought that his savings would increase in his hands, but even if he thought they would diminish. He would put by a few fruit and eggs for the winter, because they would then be scarce, though they would not improve by keeping. If he did not see his way to investing his earnings in trade or on loan, so as to derive interest or profits from them, he would follow the example of some of our own forefathers who accumulated small stores of guineas which they carried into the country, when they retired from active life. They reckoned that the extra gratification which they could get by spending a few more guineas while money was coming in fast, would be of less service to them than the comfort which those guineas would buy for them in their old age. The care of the guineas cost them a great deal of trouble; and no doubt they would have been willing to pay some small charge to any one who would have relieved them from the trouble without occasioning them any sort of risk.

Some saving might therefore

We can therefore imagine a state of things in which stored-up wealth could be put to but little good use; in which many persons wanted to make provision for their own future; while but few of those who wanted to borrow goods, were able to offer good security

for returning them, or equivalent goods, at a future date. In such a state of things the postponement of, and waiting for enjoyments would be an action that incurred a penalty rather than reaped a reward : by handing over his means to another to be taken care of, a person could only expect to get a sure promise of something less, and not of something more than that which he lent : the rate of interest would be negative.[1]

conceivably be made even if interest were negative;

Such a state of things is conceivable. But it is also conceivable, and almost equally probable, that people may be so anxious to work that they will undergo some penalty as a condition of obtaining leave to work. For, as deferring the consumption of some of his means is a thing which a prudent person would desire on its own account, so doing some work is a desirable object on its own account to a healthy person. Political prisoners, for instance, generally regard it as a favour to be allowed to do a little work. And human nature being what it is, we are justified in speaking of the interest on capital as the reward of the sacrifice involved in the waiting for the enjoyment of material resources, because few people would save much without reward ; just as we speak of wages as the reward of labour, because few people would work hard without reward.

but it is equally true that some work would be done even if there were a penalty for it.

We may therefore call interest the reward of waiting :

The sacrifice of present pleasure for the sake of future, has been called *abstinence* by economists. But this term has been misunderstood : for the greatest accumulators of wealth are very rich persons, some of whom live in luxury, and certainly do not practise abstinence in that sense of the term in which it is convertible with abstemiousness. What economists meant was that, when a person abstained from consuming anything which he had the power of consuming, with the purpose of increasing his resources in the future, his abstinence from that particular act of consumption increased the accumulation of wealth. Since, however, the term is liable to be misunderstood, we may with advantage avoid its use, and say that the accumulation of wealth is generally the result of a postponement of enjoyment, or of a *waiting* for it.[2] Or, in other words again, it is dependent on man's *prospectiveness*; that is, his faculty of realizing the future.

not of abstinence.

[1] The suggestion that the rate of interest may conceivably become a negative quantity was discussed by Foxwell in a paper on *Some Social Aspects of Banking*, read before the Bankers' Institute in January, 1886.

[2] Karl Marx and his followers have found much amusement in contemplating the accumulations of wealth which result from the abstinence of Baron Rothschild, which they contrast with the extravagance of a labourer who feeds a family of seven on seven shillings a week ; and who, living up to his full income, practises no economic abstinence at all. The argument that it is Waiting rather than Abstinence, which is rewarded by Interest and is a factor of production, was given by Macvane in the Harvard *Journal of Economics* for July, 1887.

IV, VII, 9.

The "demand price" of accumulation, that is, the future pleasure which his surroundings enable a person to obtain by working and waiting for the future, takes many forms: but the substance is always the same. The extra pleasure which a peasant who has built a weatherproof hut derives from its usance, while the snow is drifting into those of his neighbours who have spent less labour on building theirs, is the price earned by his working and waiting. It represents the extra *productiveness* of efforts wisely spent in providing against distant evils, or for the satisfaction of future wants, as compared with that which would have been derived from an impulsive grasping at immediate satisfactions. Thus it is similar in all fundamental respects to the interest which the retired physician derives from the capital he has lent to a factory or a mine to enable it to improve its machinery; and on account of the numerical definiteness of the form in which it is expressed, we may take that interest to be the type of and to represent the usance of wealth in other forms.

It matters not for our immediate purpose whether the power over the enjoyment for which the person waits, was earned by him directly by labour, which is the original source of nearly all enjoyment; or was acquired by him from others, by exchange or by inheritance, by legitimate trade or by unscrupulous forms of speculation, by spoliation or by fraud: the only points with which we are just now concerned are that the growth of wealth involves in general a deliberate waiting for a pleasure which a person has (rightly or wrongly) the power of commanding in the immediate present, and that his willingness so to wait depends on his habit of vividly realizing the future and providing for it.

The greater the rate of gain from present sacrifice the greater will often be the saving,

§ **9.** But let us look more closely at the statement that, as human nature is constituted, an increase in the future pleasure which can be secured by a present given sacrifice will in general increase the amount of present sacrifice that people will make. Suppose, for instance, that villagers have to get timber for building their cottages from the forests; the more distant these are, the smaller will be the return of future comfort got by each day's work in fetching the wood, the less will be their future gain from the wealth accumulated probably by each day's work: and this smallness of the return of future pleasure, to be got at a given present sacrifice, will tend to prevent them from increasing the size of their cottages; and will perhaps diminish on the whole the amount of labour they spend in getting timber. But this rule is not without exception. For, if custom has made them familiar with cottages of only one fashion, the

but not always.

further they are from the woods, and the smaller the usance to be got from the produce of one day's work, the more days' work will they give. IV, VII, 9.

So the higher the rate of interest the greater the saving as a rule.

And similarly if a person expects, not to use his wealth himself, but to let it out on interest, the higher the rate of interest the higher his reward for saving. If the rate of interest on sound investments is 4 per cent., and he gives up £100 worth of enjoyment now, he may expect an annuity of £4 worth of enjoyment: but he can expect only £3 worth, if the rate is 3 per cent. And a fall in the rate of interest will generally lower the margin at which a person finds it just not worth while to give up present pleasures for the sake of those future pleasures that are to be secured by saving some of his means. It will therefore generally cause people to consume a little more now, and to make less provision for future enjoyment. But this rule is not without exception.

but there are exceptions to the rule.

Sir Josiah Child remarked more than two centuries ago, that in countries in which the rate of interest is high, merchants "when they have gotten great wealth, leave trading" and lend out their money at interest, "the gain thereof being so easy, certain and great; whereas in other countries where interest is at a lower rate, they continue merchants from generation to generation, and enrich themselves and the state." And it is as true now, as it was then, that many men retire from business when they are yet almost in the prime of life, and when their knowledge of men and things might enable them to conduct their business more efficiently than ever. Again, as Sargant has pointed out, if a man has decided to go on working and saving till he has provided a certain income for his old age, or for his family after his death, he will find that he has to save more if the rate of interest is low than if it is high. Suppose, for instance, that he wishes to provide an income of £400 a year on which he may retire from business, or to insure £400 a year for his wife and children after his death: if then the current rate of interest is 5 per cent., he need only put by £8,000, or insure his life for £8,000; but if it is 4 per cent., he must save £10,000, or insure his life for £10,000.

But in spite of exceptions a fall in the rate of interest tends to make saving less than it

It is then possible that a continued fall in the rate of interest may be accompanied by a continued increase in the yearly additions to the world's capital. But none the less is it true that a fall in the distant benefits to be got by a given amount of working and waiting for the future does tend on the whole to diminish the provision which people make for the future; or in more modern phrase, that a fall in the rate of interest tends to check the accumulation of wealth. For

IV, VII, 10. though with man's growing command over the resources of nature, he may continue to save much even with a low rate of interest; yet while human nature remains as it is every fall in that rate is likely to cause many more people to save less than to save more than they would otherwise have done.[1]

otherwise would be.

Provisional conclusion.

§ 10. The causes which govern the accumulation of wealth and its relation to the rate of interest have so many points of contact with various parts of economic science, that the study of them cannot easily be brought together in one part of our inquiry. And although in the present Book we are concerned mainly with the side of supply; it has seemed necessary to indicate provisionally here something of the general relations between the demand for and the supply of capital. And we have seen that :—

The accumulation of wealth is governed by a great variety of causes: by custom, by habits of self-control and realizing the future, and above all by the power of family affection. Security is a necessary condition for it, and the progress of knowledge and intelligence furthers it in many ways.

A rise in the rate of interest offered for capital, *i.e.* in the demand price for saving, tends to increase the volume of saving. For in spite of the fact that a few people who have determined to secure an income of a certain fixed amount for themselves or their family will save less with a high rate of interest than with a low rate, it is a nearly universal rule that a rise in the rate increases the *desire* to save; and it often increases the *power* to save, or rather it is often an indication of an increased efficiency of our productive resources: but the older economists went too far in suggesting that a rise of interest (or of profits) at the expense of wages always increased the power of saving: they forgot that from the national point of view the investment of wealth in the child of the working man is as productive as its investment in horses or machinery.

It must however be recollected that the annual investment of wealth is a small part of the already existing stock, and that therefore the stock would not be increased perceptibly in any one year by even a considerable increase in the annual rate of saving.

[1] See also VI. vi. It may however be observed here that the dependence of the growth of capital on the high estimation of "future goods" appears to have been over-estimated by earlier writers; not under-estimated, as is argued by Prof. Böhm-Bawerk.

NOTE ON THE STATISTICS OF THE GROWTH OF WEALTH.

IV, VII, 11.

Estimates of national wealth are seldom direct:

§ 11. The statistical history of the growth of wealth is singularly poor and misleading. This is partly due to difficulties inherent in any attempt to give a numerical measure of wealth which shall be applicable to different places and times, partly to the absence of systematic attempts to collect the necessary facts. The Government of the United States does indeed ask for returns of every person's property; and though the results thus obtained are not satisfactory, yet they are perhaps the best we have.

they are generally based on estimates of income.

Estimates of the wealth of other countries have to be based almost exclusively on estimates of income, which are capitalized at various numbers of years' purchase; this number being chosen with reference (i) to the general rate of interest current at the time, (ii) to the extent to which the income derived from the use of wealth in any particular form is to be credited (*a*) to the permanent income-yielding power of the wealth itself; and (*b*) to either the labour spent in applying it, or the using up of the capital itself. This last head is specially important in the case of ironworks which depreciate rapidly, and still more in the case of such mines as are likely to be speedily exhausted; both must be capitalized at only a few years' purchase. On the other hand, the income-yielding power of land is likely to increase; and where that is the case, the income from land has to be capitalized at a great number of years' purchase (which may be regarded as making a negative provision under the head of ii. *b*).

The money value of land is increased by its scarcity.

Land, houses, and live stock are the three forms of wealth which have been in the first rank of importance always and everywhere. But land differs from other things in this, that an increase in its value is often chiefly due to an increase in its scarcity; and is therefore a measure rather of growing wants, than of growing means of meeting wants. Thus the land of the United States in 1880 counted as of about equal value with the land of the United Kingdom, and about half that of France. Its money value was insignificant a hundred years ago; and if the density of population two or three hundred years hence is nearly the same in the United States as in the United Kingdom, the land of the former will then be worth at least twenty times as much as that of the latter.

In the early middle ages the whole value of the land of England was much less than that of the few large-boned but small-sized animals that starved through the winter on it: now, though much of the best land is entered under the heads of houses, railways, etc.; though the live stock is now probably more than ten times as heavy in aggregate weight, and of better quality; and though there is now abundant farming capital of kinds which were then unknown; yet agricultural land is now worth more than three times as much as the farm stock. The few years of the pressure of the great French war nearly doubled the nominal value of the land of England. Since then free trade, improvements in transport, the opening of new countries, and other causes have lowered the nominal value of that part of the land which is devoted to agriculture. And they have made the general purchasing power of money in terms of commodities rise in England relatively to the Continent. Early in the last century 25 fr. would buy more, and especially more of the things needed by the working classes, in France and Germany than £1 would in England. But now the advantage is the other way: and this causes the recent growth of the wealth of France and Germany to appear to be greater relatively to that of England than it really is.

When account is taken of facts of this class, and also of the fact that a fall in the rate of interest increases the number of years' purchase at which any income has to be capitalized, and therefore increases the value of a property

IV, VII, 11. which yields a given income; we see that the estimates of national wealth would be very misleading, even if the statistics of income on which they were based were accurate. But still such estimates are not wholly without value.

Country and Author of Estimate.	Land, £ mill.	Houses, etc., £ mill.	Farm-capital, £ mill.	Other wealth, £ mill.	Total wealth, £ mill.	Wealth per cap. £
ENGLAND.						
1679 (Petty)	144	30	36	40	250	42
1690 (Gregory King)	180	45	25	70	320	58
1812 (Colquhoun)	750	300	143	653	1,846	180
1885 (Giffen)	1,333	1,700	382	3,012	6,427	315
UNITED KINGDOM.						
1812 (Colquhoun)	1,200	400	228	908	2,736	160
1855 (Edleston)	1,700	550	472	1,048	3,760	130
1865 (Giffen)	1,864	1,031	620	2,598	6,113	200
1875 —	2,007	1,420	668	4,453	8,548	260
1885 —	1,691	1,927	522	5,897	10,037	270
1905 (Money)	966	2,827	285	7,326	11,413	265
UNITED STATES.						
1880 (Census)	2,040	2,000	480	4,208	8,728	175
1890 —					13,200	208
1900 —					18,860	247
FRANCE.						
1892 (de Foville)	3,000	2,000	400	4,000	9,400	247
ITALY.						
1884 (Pantaleoni)	1,160	360			1,920	65

Sir R. Giffen's *Growth of Capital* and Mr. Chiozza Money's *Riches and Poverty* contain suggestive discussions on many of the figures in the above table. But their divergences show the great uncertainty of all such estimates. Mr. Money's estimate of the value of land, *i.e.* agricultural land with farm buildings, is probably too low. Sir R. Giffen estimates the value of public property at £m. 500: and he omits public loans held at home, on the ground that the entries for them would cancel one another, as much being debited under the head of public property as is credited under that of private property. But Mr. Money reckons the gross value of public roads, parks, buildings, bridges, sewers, lighting and water works, tramways, etc. at £m. 1,650: and, after deducting from this £m. 1,200 for public loans, he gets £m. 450 for the net value of public property; and he thus becomes free to count public loans held at home under private property. He estimates the value of foreign stock exchange securities and other foreign property held in the United Kingdom at £m. 1,821. These estimates of wealth are mainly based on estimates of income: and, as regards the statistics of income, attention may be directed to Mr. Bowley's instructive analysis in *National progress since* 1882; and in *The Economic Journal* for September 1904.

Sir R. Giffen estimates the wealth of the British Empire in 1903 (*Statistical Journal*, Vol. 66, p. 584) thus:

United Kingdom	£m. 15,000
Canada	,, 1,350
Australasia	,, 1,100
India	,, 3,000
South Africa	,, 600
Remainder of Empire	,, 1,200

A tentative history of changes in the relative wealth of different parts of England has been deduced by Rogers from the assessment of the several counties for the purpose of taxation. Le Vicomte d'Avenel's great work *L'Histoire Économique de la Propriété &c.* 1200–1800 contains a rich store of materials as to France; and comparative studies of the growth of wealth in France and other nations have been made by Levasseur, Leroy Beaulieu, Neymarck and de Foville. IV, VII, 11.

Mr. Crammond, addressing the Institute of Bankers in March 1919, estimated the national wealth of the United Kingdom to be £m. 24,000, and the national income to be £m. 3,600. He reckoned the net value of the country's foreign investments to have fallen to £m. 1,600, she having recently sold securities amounting to £m. 1,600; and borrowed another £m. 1,400. On the balance she appeared to be a creditor to the amount of £m. 2,600: but a great part of this amount cannot be reckoned as adequately secured.

CHAPTER VIII

INDUSTRIAL ORGANIZATION

IV, viii, 1.

The doctrine that organization increases efficiency is old.

§ 1. Writers on social science from the time of Plato downwards have delighted to dwell on the increased efficiency which labour derives from organization. But in this, as in other cases, Adam Smith gave a new and larger significance to an old doctrine by the philosophic thoroughness with which he explained it, and the practical knowledge with which he illustrated it. After insisting on the advantages of the division of labour, and pointing out how they render it possible for increased numbers to live in comfort on a limited territory, he argued that the pressure of population on the means of subsistence tends to weed out those races who through want of organization or for any other cause are unable to turn to the best account the advantages of the place in which they live.

Biologists and economists have studied the influence which the struggle for survival exerts on organization.

Before Adam Smith's book had yet found many readers, biologists were already beginning to make great advances towards understanding the real nature of the differences in organization which separate the higher from the lower animals; and before two more generations had elapsed, Malthus' historical account of man's struggle for existence started Darwin on that inquiry as to the effects of the struggle for existence in the animal and vegetable world, which issued in his discovery of the selective influence constantly played by it. Since that time biology has more than repaid her debt; and economists have in their turn owed much to the many profound analogies which have been discovered between social and especially industrial organization on the one side and the physical organization of the higher animals on the other. In a few cases indeed the apparent analogies disappeared on closer inquiry: but many of those which seemed at first sight most fanciful, have gradually been supplemented by others, and have at last established their claim to illustrate a fundamental unity of action between the laws of nature in the physical and in the moral world. This central unity is set forth in the general rule, to which there are not very many exceptions, that the development of the organism, whether social or physical, involves an increasing subdivision of functions between its separate parts on the one hand, and on the other a more

intimate connection between them.[1] Each part gets to be less and less self-sufficient, to depend for its wellbeing more and more on other parts, so that any disorder in any part of a highly-developed organism will affect other parts also.

Differentiation and Integration.

This increased subdivision of functions, or "differentiation," as it is called, manifests itself with regard to industry in such forms as the division of labour, and the development of specialized skill, knowledge and machinery: while "integration," that is, a growing intimacy and firmness of the connections between the separate parts of the industrial organism, shows itself in such forms as the increase of security of commercial credit, and of the means and habits of communication by sea and road, by railway and telegraph, by post and printing-press.

The doctrine that those organisms which are the most highly developed, in the sense in which we have just used the phrase, are those which are most likely to survive in the struggle for existence, is itself in process of development. It is not yet completely thought out either in its biological or its economic relations. But we may pass to consider the main bearings in economics of the law that the struggle for existence causes those organisms to multiply which are best fitted to derive benefit from the environment.

The law of struggle for survival requires to be carefully interpreted.

The law requires to be interpreted carefully: for the fact that a thing is beneficial to its environment will not by itself secure its survival either in the physical or in the moral world. The law of "survival of the fittest" states that those organisms tend to survive which are best fitted to utilize the environment for their own purposes. Those that utilize the environment most, often turn out to be those that benefit those around them most; but sometimes they are injurious.

Conversely, the struggle for survival may fail to bring into existence organisms that would be highly beneficial: and in the economic world the demand for any industrial arrangement is not certain to call forth a supply, unless it is something more than a mere desire for the arrangement, or a need for it. It must be an efficient demand; that is, it must take effect by offering adequate payment or some other benefit to those who supply it.[2] A mere desire on the part of employees for a share in the management and

[1] See a brilliant paper by Häckel on *Arbeitstheilung in Menschen- und Thierleben* and Schäffle's *Bau und Leben des socialen Körpers*.

[2] Like all other doctrines of the same class, this requires to be interpreted in the light of the fact that the effective demand of a purchaser depends on his means, as well as on his wants: a small want on the part of a rich man often has more effective force in controlling the business arrangements of the world than a great want on the part of a poor man.

IV, VIII, 2.

the profits of the factory in which they work, or the need on the part of clever youths for a good technical education, is not a demand in the sense in which the term is used when it is said that supply naturally and surely follows demand. This seems a hard truth: but some of its harshest features are softened down by the fact that those races, whose members render services to one another without exacting direct recompense, are not only the most likely to flourish for the time, but most likely to rear a large number of descendants who inherit their beneficial habits.

Its harshest features softened by the principle of heredity.

Influence of parental care on survival of the species.

§ 2. Even in the vegetable world a species of plants, however vigorous in its growth, which should be neglectful of the interests of its seeds, would soon perish from the earth. The standard of family and race duty is often high in the animal kingdom; and even those predatory animals which we are accustomed to regard as the types of cruelty, which fiercely utilize the environment and do nothing for it in return, must yet be willing as individuals to exert themselves for the benefit of their offspring. And going beyond the narrower interests of the family to those of the race, we find that among so-called social animals, such as bees and ants, those races survive in which the individual is most energetic in performing varied services for the society without the prompting of direct gain to himself.

In man self-sacrifice becomes deliberate and is the basis of the strength of the race.

But when we come to human beings, endowed with reason and speech, the influence of a tribal sense of duty in strengthening the tribe takes a more varied form. It is true that in the ruder stages of human life many of the services rendered by the individual to others are nearly as much due to hereditary habit and unreasoning impulse, as are those of the bees and ants. But deliberate, and therefore moral, self-sacrifice soon makes its appearance; it is fostered by the far-seeing guidance of prophets and priests and legislators, and is inculcated by parable and legend. Gradually the unreasoning sympathy, of which there are germs in the lower animals, extends its area and gets to be deliberately adopted as a basis of action: tribal affection, starting from a level hardly higher than that which prevails in a pack of wolves or a horde of banditti, gradually grows into a noble patriotism; and religious ideals are raised and purified. The races in which these qualities are the most highly developed are sure, other things being equal, to be stronger than others in war and in contests with famine and disease; and ultimately to prevail. Thus the struggle for existence causes in the long run those races of men to survive in which the individual is most willing to sacrifice himself for the benefit of those around him; and

which are consequently the best adapted collectively to make use of their environment.

But evil is mixed with the good.

Unfortunately however not all the qualities which enable one race to prevail over another benefit mankind as a whole. It would no doubt be wrong to lay very much stress on the fact that warlike habits have often enabled half-savage races to reduce to submission others who were their superiors in every peaceful virtue; for such conquests have gradually increased the physical vigour of the world, and its capacity for great things, and ultimately perhaps have done more good than harm. But there is no such qualification to the statement that a race does not establish its claim to deserve well of the world by the mere fact that it flourishes in the midst or on the surface of another race. For, though biology and social science alike show that parasites sometimes benefit in unexpected ways the race on which they thrive; yet in many cases they turn the peculiarities of that race to good account for their own purposes without giving any good return. The fact that there is an economic demand for the services of Jewish and Armenian money-dealers in Eastern Europe and Asia, or for Chinese labour in California, is not by itself a proof, nor even a very strong ground for believing, that such arrangements tend to raise the quality of human life as a whole. For, though a race entirely dependent on its own resources can scarcely prosper unless it is fairly endowed with the most important social virtues; yet a race, which has not these virtues and which is not capable of independent greatness, may be able to thrive on its relations with another race. But on the whole, and subject to grave exceptions, those races survive and predominate in which the best qualities are most strongly developed.

especially in the case of a parasitic race.

The caste system was useful at the time, but not free from drawbacks.

§ 3. This influence of heredity shows itself nowhere more markedly than in social organization. For that must necessarily be a slow growth, the product of many generations: it must be based on those customs and aptitudes of the great mass of the people which are incapable of quick change. In early times when religious, ceremonial, political, military and industrial organization were intimately connected, and were indeed but different sides of the same thing, nearly all those nations which were leading the van of the world's progress were found to agree in having adopted a more or less strict system of caste: and this fact by itself proved that the distinction of castes was well suited to its environment, and that on the whole it strengthened the races or nations which adopted it. For since it was a controlling factor of life, the nations which adopted it could not have generally prevailed over others, if the influence

IV, VIII, 3. exerted by it had not been in the main beneficial. Their pre-eminence proved not that it was free from defects, but that its excellences, relatively to that particular stage of progress, outweighed its defects.

Again we know that an animal or a vegetable species may differ from its competitors by having two qualities, one of which is of great advantage to it; while the other is unimportant, perhaps even slightly injurious, and that the former of these qualities will make the species succeed in spite of its having the latter: the survival of which will then be no proof that it is beneficial. Similarly the struggle for existence has kept alive many qualities and habits in the human race which were in themselves of no advantage, but which are associated by a more or less permanent bond with others that are great sources of strength. Such instances are found in the tendency to an overbearing demeanour and a scorn for patient industry among nations that owe their advance chiefly to military victories; and again in the tendency among commercial nations to think too much of wealth and to use it for the purposes of display. But the most striking instances are found in matters of organization; the excellent adaptation of the system of caste for the special work which it had to do, enabled it to flourish in spite of its great faults, the chief of which were its rigidity, and its sacrifice of the individual to the interests of society, or rather to certain special exigencies of society.

The same is true of the relations between different industrial classes in the modern Western world.

Passing over intermediate stages and coming at once to the modern organization of the Western world, we find it offering a striking contrast, and a no less striking resemblance, to the system of caste. On the one hand, rigidity has been succeeded by plasticity: the methods of industry which were then stereotyped, now change with bewildering quickness; the social relations of classes, and the position of the individual in his class, which were then definitely fixed by traditional rules, are now perfectly variable and change their forms with the changing circumstances of the day. But on the other hand, the sacrifice of the individual to the exigencies of society as regards the production of material wealth seems in some respects to be a case of atavism, a reversion to conditions which prevailed in the far-away times of the rule of caste. For the division of labour between the different ranks of industry and between different individuals in the same rank is so thorough and uncompromising, that the real interests of the producer are sometimes in danger of being sacrificed for the sake of increasing the addition which his work makes to the aggregate production of material wealth.

§ 4. Adam Smith, while insisting on the general advantages of that minute division of labour and of that subtle industrial organization which were being developed with unexampled rapidity in his time, was yet careful to indicate many points in which the system failed, and many incidental evils which it involved.[1] But many of his followers with less philosophic insight, and in some cases with less real knowledge of the world, argued boldly that whatever is, is right. They argued for instance that, if a man had a talent for managing business, he would be surely led to use that talent for the benefit of mankind: that meanwhile a like pursuit of their own interests would lead others to provide for his use such capital as he could turn to best account; and that his own interest would lead him so to arrange those in his employment that everyone should do the highest work of which he was capable, and no other; and that it would lead him to purchase and use all machinery and other aids to production, which could in his hands contribute more than the equivalent of their own cost towards supplying the wants of the world.

Adam Smith's moderation, the extravagance of some of his followers.

This doctrine of natural organization contains more truth of the highest importance to humanity than almost any other which is equally likely to evade the comprehension of those who discuss grave social problems without adequate study: and it had a singular fascination for earnest and thoughtful minds. But its exaggeration worked much harm, especially to those who delighted most in it. For it prevented them from seeing and removing the evil that was intertwined with the good in the changes that were going on around them. It hindered them from inquiring whether many even of the broader features of modern industry might not be transitional, having indeed good work to do in their time, as the caste system had in its time; but being, like it, serviceable chiefly in leading the way towards better arrangements for a happier age. And it did harm by preparing the way for exaggerated reaction against it.

§ 5. Moreover the doctrine took no account of the manner in which organs are strengthened by being used. Herbert Spencer has insisted with much force on the rule that, if any physical or mental exercise gives pleasure and is therefore frequent, those physical or mental organs which are used in it are likely to grow rapidly. Among the lower animals indeed the action of this rule is so intimately interwoven with that of the survival of the fittest, that the distinction between the two need not often be emphasized. For as it might be guessed *a priori*, and as seems to be proved by observation, the struggle for survival tends to prevent animals from

They paid too little attention to the conditions under which the faculties can best be developed.

[1] See above I. IV. 6; and below Appendix B, 3 and 6.

IV, VIII, 5. taking much pleasure in the exercise of functions which do not contribute to their wellbeing.

But man, with his strong individuality, has greater freedom. He delights in the use of his faculties for their own sake; sometimes using them nobly, whether with the abandon of the great Greek burst of life, or under the control of a deliberate and steadfast striving towards important ends; sometimes ignobly, as in the case of a morbid development of the taste for drink. The religious, the moral, the intellectual and the artistic faculties on which the progress of industry depends, are not acquired solely for the sake of the things that may be got by them; but are developed by exercise for the sake of the pleasure and the happiness which they themselves bring: and, in the same way, that greater factor of economic prosperity, the organization of a well-ordered state, is the product of an infinite variety of motives; many of which have no direct connection with the pursuit of national wealth.[1]

No doubt it is true that physical peculiarities acquired by the parents during their life-time are seldom if ever transmitted to their offspring. But no conclusive case seems to have been made out for the assertion that the children of those who have led healthy lives, physically and morally, will not be born with a firmer fibre than they would have been had the same parents grown up under unwholesome influences which had enfeebled the fibre of their minds and their bodies. And it is certain that in the former case the children are likely after birth to be better nourished, and better trained; to acquire more wholesome instincts; and to have more of that regard for others and that self-respect, which are the mainsprings of human progress, than in the latter case.[2]

It is needful then diligently to inquire whether the present industrial organization might not with advantage be so modified as to increase the opportunities, which the lower grades of industry have for using latent mental faculties, for deriving pleasure from their use, and for strengthening them by use; since the argument that if such a change had been beneficial, it would have been already

[1] Man with his many motives, as he may set himself deliberately to encourage the growth of one peculiarity, may equally set himself to check the growth of another: the slowness of progress during the Middle Ages was partly due to a deliberate detestation of learning.

[2] See Note XI. in the Mathematical Appendix. Considerations of this class have little application to the development of mere animals, such as mice; and none at all to that of peas and other vegetables. And therefore the marvellous arithmetical results which have been established, provisionally at all events, in regard to heredity in such cases, have very little bearing on the full problems of inheritance with which students of social science are concerned: and some negative utterances on this subject by eminent Mendelians seem to lack due reserve. Excellent remarks on the subject will be found in Prof. Pigou's *Wealth and Welfare*, Part I, ch. IV.

brought about by the struggle for survival, must be rejected as invalid. Man's prerogative extends to a limited but effective control over natural development by forecasting the future and preparing the way for the next step.

Changes in industrial structure must wait on the development of man; and therefore must be either gradual or unstable.

Thus progress may be hastened by thought and work; by the application of the principles of Eugenics to the replenishment of the race from its higher rather than its lower strains, and by the appropriate education of the faculties of either sex: but however hastened it must be gradual and relatively slow. It must be slow relatively to man's growing command over technique and the forces of nature; a command which is making ever growing calls for courage and caution, for resource and steadfastness, for penetrating insight and for breadth of view. And it must be very much too slow to keep pace with the rapid inflow of proposals for the prompt reorganization of society on a new basis. In fact our new command over nature, while opening the door to much larger schemes for industrial organization than were physically possible even a short time ago, places greater responsibilities on those who would advocate new developments of social and industrial structure. For though, institutions may be changed rapidly; yet if they are to endure they must be appropriate to man: they cannot retain their stability if they change very much faster than he does. Thus progress itself increases the urgency of the warning that in the economic world, *Natura non facit saltum*.[1]

Progress must be slow; but even from the merely material point of view it is to be remembered that changes, which add only a little to the immediate efficiency of production, may be worth having if they make mankind ready and fit for an organization, which will be more effective in the production of wealth and more equal in its distribution; and that every system, which allows the higher faculties of the lower grades of industry to go to waste, is open to grave suspicion.

[1] Compare Appendix A, 16.

CHAPTER IX

INDUSTRIAL ORGANIZATION, CONTINUED. DIVISION OF LABOUR. THE INFLUENCE OF MACHINERY

The course of inquiry in this and the three following chapters.

§ 1. THE first condition of an efficient organization of industry is that it should keep everyone employed at such work as his abilities and training fit him to do well, and should equip him with the best machinery and other appliances for his work. We shall leave on one side for the present the distribution of work between those who carry out the details of production on the one hand, and those who manage its general arrangement and undertake its risk on the other; and confine ourselves to the division of labour between different classes of operatives, with special reference to the influence of machinery. In the following chapter we shall consider the reciprocal effects of division of labour and localization of industry; in a third chapter we shall inquire how far the advantages of division of labour depend upon the aggregation of large capitals into the hands of single individuals or firms, or, as is commonly said, on production on a large scale; and lastly, we shall examine the growing specialization of the work of business management.

Practice makes perfect.

Everyone is familiar with the fact that "practice makes perfect," that it enables an operation, which at first seemed difficult, to be done after a time with comparatively little exertion, and yet much better than before; and physiology in some measure explains this fact. For it gives reasons for believing that the change is due to the gradual growth of new habits of more or less "reflex" or automatic action. Perfectly reflex actions, such as that of breathing during sleep, are performed by the responsibility of the local nerve centres without any reference to the supreme central authority of the thinking power, which is supposed to reside in the cerebrum. But all deliberate movements require the attention of the chief central authority: it receives information from the nerve centres or local authorities and perhaps in some cases direct from the sentient nerves, and sends back detailed and complex instructions to the local authorities, or in some cases direct to the muscular nerves, and so co-ordinates their action as to bring about the required results.[1]

Physiological explanation.

[1] For instance, the first time a man attempts to skate he must give his whole attention to keeping his balance, his cerebrum has to exercise a direct control over every movement, and he has not much mental energy left for other things. But

The physiological basis of purely mental work is not yet well understood; but what little we do know of the growth of brain structure seems to indicate that practice in any kind of thinking develops new connections between different parts of the brain. Anyhow we know for a fact that practice will enable a person to solve quickly, and without any considerable exertion, questions which he could have dealt with but very imperfectly a little while before, even by the greatest effort. The mind of the merchant, the lawyer, the physician, and the man of science, becomes gradually equipped with a store of knowledge and a faculty of intuition, which can be obtained in no other way than by the continual application of the best efforts of a powerful thinker for many years together to one more or less narrow class of questions. Of course the mind cannot work hard for many hours a day in one direction: and a hard-worked man will sometimes find recreation in work that does not belong to his business, but would be fatiguing enough to a person who had to do it all day long.

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Knowledge and intellectual ability.

Some social reformers have indeed maintained that those who do the most important brain work might do a fair share of manual work also, without diminishing their power of acquiring knowledge or thinking out hard questions. But experience seems to show that the best relief from overstrain is in occupations taken up to suit the

Change of activity often a form of relaxation

after a good deal of practice the action becomes semi-automatic, the local nerve centres undertake nearly all the work of regulating the muscles, the cerebrum is set free, and the man can carry on an independent train of thought; he can even alter his course to avoid an obstacle in his path, or to recover his balance after it has been disturbed by a slight unevenness, without in any way interrupting the course of his thoughts. It seems that the exercise of nerve force under the immediate direction of the thinking power residing in the cerebrum has gradually built up a set of connections, involving probably distinct physical change, between the nerves and nerve centres concerned; and these new connections may be regarded as a sort of capital of nerve force. There is probably something like an organized bureaucracy of the local nerve centres: the medulla, the spinal axis, and the larger ganglia generally acting the part of provincial authorities, and being able after a time to regulate the district and village authorities without troubling the supreme government. Very likely they send up messages as to what is going on: but if nothing much out of the way has happened, these are very little attended to. When however a new feat has to be accomplished, as for instance learning to skate backwards, the whole thinking force will be called into requisition for the time; and will now be able by aid of the special skating-organization of the nerves and nerve centres, which has been built up in ordinary skating, to do what would have been altogether impossible without such aid.

To take a higher instance: when an artist is painting at his best, his cerebrum is fully occupied with his work: his whole mental force is thrown into it, and the strain is too great to be kept up for a long time together. In a few hours of happy inspiration he may give utterance to thoughts that exert a perceptible influence on the character of coming generations. But his power of expression had been earned by numberless hours of plodding work in which he had gradually built up an intimate connection between eye and hand, sufficient to enable him to make good rough sketches of things with which he is tolerably familiar, even while he is engaged in an engrossing conversation and is scarcely conscious that he has a pencil in his hand.

IV, IX, 2. mood of the moment and stopped when the mood is passed, that is, in what popular instinct classes as "relaxation." Any occupation which is so far business-like that a person must sometimes force himself by an effort of the will to go on with it, draws on his nervous force and is not perfect relaxation: and therefore it is not economical from the point of view of the community unless its value is sufficient to outweigh a considerable injury to his main work.[1]

In the higher grades of work extreme specialization does not always increase efficiency.

§ 2. It is a difficult and unsettled question how far specialization should be carried in the highest branches of work. In science it seems to be a sound rule that the area of study should be broad during youth, and should gradually be narrowed as years go on. A medical man who has always given his attention exclusively to one class of diseases, may perhaps give less wise advice even in his special subject than another who, having learnt by wider experience to think of those diseases in relation to general health, gradually concentrates his study more and more on them, and accumulates a vast store of special experiences and subtle instincts. But there is no doubt that greatly increased efficiency can be attained through division of labour in those occupations in which there is much demand for mere manual skill.

But it is easy to acquire a high manual skill in a narrow range of work.

Adam Smith pointed out that a lad who had made nothing but nails all his life could make them twice as quickly as a first-rate smith who only took to nail-making occasionally. Anyone who has to perform exactly the same set of operations day after day on things of exactly the same shape, gradually learns to move his fingers exactly as they are wanted, by almost automatic action and with greater rapidity than would be possible if every movement had to wait for a deliberate instruction of the will. One familiar instance is seen in the tying of threads by children in a cotton-mill. Again, in a clothing or a boot factory, a person who sews, whether by hand or machinery, just the same seam on a piece of leather or cloth of just the same size, hour after hour, day after day, is able to do it with far less effort and far more quickly than a worker with much greater quickness of eye and hand, and of a much higher order of

[1] J. S. Mill went so far as to maintain that his occupations at the India Office did not interfere with his pursuit of philosophical inquiries. But it seems probable that this diversion of his freshest powers lowered the quality of his best thought more than he was aware; and though it may have diminished but little his remarkable usefulness in his own generation, it probably affected very much his power of doing that kind of work which influences the course of thought in future generations. It was by husbanding every atom of his small physical strength that Darwin was enabled to do so much work of just that kind: and a social reformer who had succeeded in exploiting Darwin's leisure hours in useful work on behalf of the community, would have done a very bad piece of business for it.

general skill, who was accustomed to make the whole of a coat or the whole of a boot.[1]

The uniformity of many processes in the wood and metal trades.

Again, in the wood and the metal industries, if a man has to perform exactly the same operations over and over again on the same piece of material, he gets into the habit of holding it exactly in the way in which it is wanted, and of arranging the tools and other things which he has to handle in such positions that he is able to bring them to work on one another with the least possible loss of time and of force in the movements of his own body. Accustomed to find them always in the same position and to take them in the same order, his hands work in harmony with one another almost automatically: and with increased practice his expenditure of nervous force diminishes even more rapidly than his expenditure of muscular force.

The provinces of manual labour and machinery.

But when the action has thus been reduced to routine it has nearly arrived at the stage at which it can be taken over by machinery. The chief difficulty to be overcome is that of getting the machinery to hold the material firmly in exactly the position in which the machine tool can be brought to bear on it in the right way, and without wasting too much time in taking grip of it. But this can generally be contrived when it is worth while to spend some labour and expense on it; and then the whole operation can often be controlled by a worker who, sitting before a machine, takes with the left hand a piece of wood or metal from a heap and puts it in a socket, while with the right he draws down a lever, or in some other way sets the machine tool at work, and finally with his left hand throws on to another heap the material which has been cut or punched or drilled or planed exactly after a given pattern. It is in these industries especially that we find the reports of modern trades-unions to be full of complaints that unskilled labourers, and even their wives and children, are put to do work which used to require the skill and judgment of a trained mechanic, but which has been reduced to mere routine by the improvement of machinery and the ever-increasing minuteness of the subdivision of labour.

[1] The best and most expensive clothes are made by highly skilled and highly paid tailors, each of whom works right through first one garment and then another: while the cheapest and worst clothes are made for starvation wages by unskilled women who take the cloth to their own homes and do every part of the sewing themselves. But clothes of intermediate qualities are made in workshops or factories, in which the division and subdivision of labour are carried as far as the size of the staff will permit; and this method is rapidly gaining ground at both ends at the expense of the rival method. Lord Lauderdale (*Inquiry*, p. 282) quotes Xenophon's argument that the best work is done when each confines himself to one simple department, as when one man makes shoes for men, and another for women: or better when one man only sews shoes or garments, another cuts them out: the king's cooking is much better than anybody's else's, because he has one cook who only boils, another who only roasts meat; one who only boils fish, another who only fries it: there is not one man to make all sorts of bread but a special man for special qualities.

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The division of labour in relation to the growth of machinery.

§ 3. We are thus led to a general rule, the action of which is more prominent in some branches of manufacture than others, but which applies to all. It is, that any manufacturing operation that can be reduced to uniformity, so that exactly the same thing has to be done over and over again in the same way, is sure to be taken over sooner or later by machinery. There may be delays and difficulties; but if the work to be done by it is on a sufficient scale, money and inventive power will be spent without stint on the task till it is achieved.[1]

Thus the two movements of the improvement of machinery and the growing subdivision of labour have gone together and are in some measure connected. But the connection is not so close as is generally supposed. It is the largeness of markets, the increased demand for great numbers of things of the same kind, and in some cases of things made with great accuracy, that leads to subdivision of labour; the chief effect of the improvement of machinery is to cheapen and make more accurate the work which would anyhow have been subdivided. For instance, "in organizing the works at Soho, Boulton and Watt found it necessary to carry division of labour to the furthest practicable point. There were no slide-lathes, planing machines or boring tools, such as now render mechanical accuracy of construction almost a matter of certainty. Everything depended on the individual mechanic's accuracy of hand and eye; yet mechanics generally were much less skilled then than they are now. The way in which Boulton and Watt contrived partially to get over the difficulty was to confine their workmen to special classes of work, and make them as expert in them as possible. By continued practice in handling the same tools and fabricating the same articles, they thus acquired great individual proficiency."[2] Thus machinery constantly supplants and renders unnecessary that

Machinery displaces purely manual skill;

and thus diminishes

[1] One great inventor is rumoured to have spent £300,000 on experiments relating to textile machinery, and his outlay is said to have been abundantly returned to him. Some of his inventions were of such a kind as can be made only by a man of genius; and however great the need, they must have waited till the right man was found for them. He charged not unreasonably £1000 as royalty for each of his combing machines; and a worsted manufacturer, being full of work, found it worth his while to buy an additional machine, and pay this extra charge for it, only six months before the expiry of the patent. But such cases are exceptional: as a rule, patented machines are not very dear. In some cases the economy of having them all produced at one place by special machinery has been so great that the patentee has found it to his advantage to sell them at a price lower than the old price of the inferior machines which they displaced: for that old price gave him so high a profit, that it was worth his while to lower the price still further in order to induce the use of the machines for new purposes and in new markets. In almost every trade many things are done by hand, though it is well known that they could easily be done by some adaptations of machines that are already in use in that or some other trade, and which are not made only because there would not as yet be enough employment for them to remunerate the trouble and expense of making them.

[2] Smiles' *Boulton and Watt*, pp. 170, 1.

purely manual skill, the attainment of which was, even up to Adam Smith's time, the chief advantage of division of labour. But this influence is more than countervailed by its tendency to increase the scale of manufactures and to make them more complex; and therefore to increase the opportunities for division of labour of all kinds, and especially in the matter of business management.

IV, IX, 4.

some of the advantages of division of labour: but increases the scope for it.

§ 4. The powers of machinery to do work that requires too much accuracy to be done by hand are perhaps best seen in some branches of the metal industries in which the system of Interchangeable Parts is being rapidly developed. It is only after long training and with much care and labour that the hand can make one piece of metal accurately to resemble or to fit into another: and after all the accuracy is not perfect. But this is just the work which a well made machine can do most easily and most perfectly. For instance, if sowing and reaping machines had to be made by hand, their first cost would be very high; and when any part of them was broken, it could be replaced only at great cost by sending the machine back to the manufacturer or by bringing a highly skilled mechanic to the machine. But as it is, the manufacturer keeps in store many facsimiles of the broken part, which were made by the same machinery, and are therefore interchangeable with it. A farmer in the North-West of America, perhaps a hundred miles away from any good mechanic's shop, can yet use complicated machinery with confidence; since he knows that by telegraphing the number of the machine and the number of any part of it which he has broken, he will get by the next train a new piece which he can himself fit into its place. The importance of this principle of interchangeable parts has been but recently grasped; there are however many signs that it will do more than any other to extend the use of machine-made machinery to every branch of production, including even domestic and agricultural work.[1]

Machine-made machinery is introducing the new era of Interchangeable Parts.

The influences which machinery exerts over the character of modern industry are well illustrated in the manufacture of watches. Some years ago the chief seat of this business was in French Switzerland; where the subdivision of labour was carried far, though a great part of the work was done by a more or less scattered population. There were about fifty distinct branches of trade each of which did one small part of the work. In almost all of them a highly specialized manual skill was required, but very little judgment; the earnings

Illustration from the history of the watch-making trade.

[1] The system owes its origin in great measure to Sir Joseph Whitworth's standard gauges; but it has been worked out with most enterprise and thoroughness in America. Standardization is most helpful in regard to things which are to be built up with others into complex machines, buildings, bridges, etc.

IV, IX, 4.

were generally low, because the trade had been established too long for those in it to have anything like a monopoly, and there was no difficulty in bringing up to it any child with ordinary intelligence. But this industry is now yielding ground to the American system of making watches by machinery, which requires very little specialized manual skill. In fact the machinery is becoming every year more and more automatic, and is getting to require less and less assistance from the human hand. But the more delicate the machine's power, the greater is the judgment and carefulness which is called for from those who see after it. Take for instance a beautiful machine which feeds itself with steel wire at one end, and delivers at the other tiny screws of exquisite form; it displaces a great many operatives who had indeed acquired a very high and specialized manual skill, but who lived sedentary lives, straining their eyesight through microscopes, and finding in their work very little scope for any faculty except a mere command over the use of their fingers. But the machine is intricate and costly, and the person who minds it must have an intelligence, and an energetic sense of responsibility, which go a long way towards making a fine character; and which, though more common than they were, are yet sufficiently rare to be able to earn a very high rate of pay. No doubt this is an extreme case; and the greater part of the work done in a watch factory is much simpler. But much of it requires higher faculties than the old system did, and those engaged in it earn on the average higher wages; at the same time it has already brought the price of a trustworthy watch within the range of the poorest classes of the community, and it is showing signs of being able soon to accomplish the very highest class of work.[1]

Complex machinery increases the demand for judgment and general intelligence;

and in some cases weakens the barriers that divide different trades.

Those who finish and put together the different parts of a watch must always have highly specialized skill: but most of the machines which are in use in a watch factory are not different in general character from those which are used in any other of the lighter metal trades: in fact many of them are mere modifications of the turning lathes and of the slotting, punching, drilling, planing, shaping, milling machines and a few others, which are familiar to all engineering trades. This is a good illustration of the fact that while there is a constantly increasing subdivision of labour, many of the lines of

[1] The perfection which the machinery has already attained is shown by the fact that at the Inventions Exhibition held in London in 1885, the representative of an American watch factory took to pieces fifty watches before some English representatives of the older system of manufacture, and after throwing the different parts into different heaps, asked them to select for him one piece from each heap in succession; he then set these pieces up in one of the watch-cases and handed them back a watch in perfect order.

division between trades which are nominally distinct are becoming narrower and less difficult to be passed. In old times it would have been very small comfort to watch-makers, who happened to be suffering from a diminished demand for their wares, to be told that the gun-making trade was in want of extra hands; but most of the operatives in a watch factory would find machines very similar to those with which they were familiar, if they strayed into a gun-making factory or sewing-machine factory, or a factory for making textile machinery. A watch factory with those who worked in it could be converted without any overwhelming loss into a sewing-machine factory: almost the only condition would be that in the new factory no one should be put to work which required a higher order of general intelligence, than that to which he was already accustomed.

IV, IX, 5.

Illustration from the printing trade.

§ 5. The printing trade affords another instance of the way in which an improvement of machinery and an increase in the volume of production causes an elaborate subdivision of labour. Everyone is familiar with the pioneer newspaper editor of newly settled districts of America, who sets up the type of his articles as he composes them; and with the aid of a boy prints off his sheets and distributes them to his scattered neighbours. When however the mystery of printing was new, the printer had to do all this for himself, and in addition to make all his own appliances.[1] These are now provided for him by separate "subsidiary" trades, from whom even the printer in the backwoods can obtain everything that he wants to use. But in spite of the assistance which it thus gets from outside, a large printing establishment has to find room for many different classes of workers within its walls. To say nothing of those who organize and superintend the business, of those who do its office work and keep its stores, of the skilled "readers" who correct any errors that may have crept into the "proofs," of its engineers and repairers of machinery, of those who cast, and who correct and prepare its stereotype plates; of the warehousemen and the boys and girls who assist them, and several other minor classes; there are the two great groups of the compositors who set up the type, and the machinists and pressmen who print impressions from them. Each of these two groups is divided into many smaller groups, especially in the large centres of the printing trade. In London, for instance, a minder

Instance of the multiplication in

[1] "The type-founder was probably the first to secede from the concern; then printers delegated to others the making of presses; afterwards the ink and the rollers found separate and distinct manufacturers; and there arose a class of persons who, though belonging to other trades, made printing appliances a speciality, such as printers' smiths, printers' joiners and printers' engineers" (Mr. Southward in the Article on *Typography* in the *Encyclopædia Britannica*).

IV, IX, 5.

modern industry of thin lines of division,

who was accustomed to one class of machine, or a compositor who was accustomed to one class of work, if thrown out of employment would not willingly abandon the advantage of his specialized skill, and falling back on his general knowledge of the trade seek work at another kind of machine or in another class of work.[1] These barriers between minute subdivisions of a trade count for a great deal in many descriptions of the modern tendency towards specialization of industry; and to some extent rightly, because though many of them are so slight that a man thrown out of work in one subdivision could pass into one of its neighbours without any great loss of efficiency, yet he does not do so until he has tried for a while to get employment in his old lines; and therefore the barriers are as effective as stronger ones would be so far as the minor fluctuations of trade from week to week are concerned. But they are of an altogether different kind from the deep and broad partitions which divided one group of mediæval handicraftsmen from another, and which caused the lifelong suffering of the handloom-weavers when their trade had left them.[2]

which can be passed without great difficulty.

Instance of the increased

In the printing trades, as in the watch trade, we see mechanical and scientific appliances attaining results that would be impossible

[1] For instance, Mr. Southward tells us "a minder may understand only book machines or only news machines; he may know all about" machines that print from flat surfaces or those that print from cylinders; "or of cylinders he may know only one kind. Entirely novel machines create a new class of artisans. There are men perfectly competent to manage a Walter press who are ignorant how to work two-colour or fine book-work machines. In the compositor's department division of labour is carried out to a still minuter degree. An old-fashioned printer would set up indifferently a placard, a title-page, or a book. At the present day we have jobbing hands, book hands, and news hands, the word 'hand' suggesting the factory-like nature of the business. There are jobbing hands who confine themselves to posters. Book hands comprise those who set up the titles and those who set up the body of the work. Of these latter again, while one man composes, another, the 'maker-up,' arranges the pages."

[2] Let us follow still further the progress of machinery in supplanting manual labour in some directions and opening out new fields for its employment in others. Let us watch the process by which large editions of a great newspaper are set up and printed off in a few hours. To begin with, a good part of the type-setting is itself often done by a machine; but in any case the types are in the first instance on a plane surface, from which it is impossible to print very rapidly. The next step therefore is to make a papier-maché cast of them, which is bent on to a cylinder, and is then used as the mould from which a new metal plate is cast that fits the cylinders of the printing machine. Fixed on these it rotates alternately against the inking cylinders and the paper. The paper is arranged in a huge roll at the bottom of the machine and unrolls itself automatically, first against the damping cylinders and then against the printing cylinders, the first of which prints it on one side, and the second on the other: thence to the cutting cylinders, which cut it into equal lengths, and thence to the folding apparatus, which folds it ready for sale.

More recently the casting of the type has been brought under the new methods. The compositor plays on a keyboard like that of the type-writer, and the matrix of a corresponding letter goes into line: then after spacing out, molten lead is poured on the line of matrices, and a solid line of type is ready. And in a further development each letter is cast separately from its matrix; the machine reckons up the space taken by the letters, stops when there are enough for a line, divides out the free space equally into the requisite number of small spaces between the words; and finally casts the line. It is claimed that one compositor can work several such machines simultaneously in distant towns by electric currents.

without them; at the same time that they persistently take over work that used to require manual skill and dexterity, but not much judgment; while they leave for man's hand all those parts which do require the use of judgment, and open up all sorts of new occupations in which there is a great demand for it. Every improvement and cheapening of the printer's appliances increases the demand for the judgment and discretion and literary knowledge of the reader, for the skill and taste of those who know how to set up a good title-page, or how to make ready a sheet on which an engraving is to be printed, so that light and shade will be distributed properly. It increases the demand for the gifted and highly-trained artists who draw or engrave on wood and stone and metal, and for those who know how to give an accurate report in ten lines of the substance of a speech that occupied ten minutes—an intellectual feat the difficulty of which we underrate, because it is so frequently performed. And again, it tends to increase the work of photographers and electrotypers, and stereotypers, of the makers of printer's machinery, and many others who get a higher training and a higher income from their work than did those layers on and takers off, and those folders of newspapers who have found their work taken over by iron fingers and iron arms.

Demand for faculties of a high order caused by machinery.

§ 6. We may now pass to consider the effects which machinery has in relieving that excessive muscular strain which a few generations ago was the common lot of more than half the working men even in such a country as England. The most marvellous instances of the power of machinery are seen in large iron-works, and especially in those for making armour plates, where the force to be exerted is so great that man's muscles count for nothing, and where every movement, whether horizontal or vertical, has to be effected by hydraulic or steam force, and man stands by ready to govern the machinery and clear away ashes or perform some such secondary task.

Machinery relieves the strain on human muscles.

Machinery of this class has increased our command over nature, but it has not directly altered the character of man's work very much; for that which it does he could not have done without it. But in other trades machinery has lightened man's labours. The house carpenters, for instance, make things of the same kind as those used by our forefathers, with much less toil for themselves. They now give themselves chiefly to those parts of the task which are most pleasant and most interesting; while in every country town and almost every village there are found steam mills for sawing, planing and moulding, which relieve them of that grievous

IV, IX, 6.

Machinery takes over sooner or later all monotonous work in manufacture.

fatigue which not very long ago used to make them prematurely old.[1]

New machinery, when just invented, generally requires a great deal of care and attention. But the work of its attendant is always being sifted; that which is uniform and monotonous is gradually taken over by the machine, which thus becomes steadily more and more automatic and self-acting; till at last there is nothing for the hand to do, but to supply the material at certain intervals and to take away the work when finished. There still remains the responsibility for seeing that the machinery is in good order and working smoothly; but even this task is often made light by the introduction of an automatic movement, which brings the machine to a stop the instant anything goes wrong.

Illustration from the textile industries.

Nothing could be more narrow or monotonous than the occupation of a weaver of plain stuffs in the old time. But now one woman will manage four or more looms, each of which does many times as much work in the course of the day as the old hand-loom did; and her work is much less monotonous and calls for much more judgment than his did. So that for every hundred yards of cloth that are woven, the purely monotonous work done by human beings is probably not a twentieth part of what it was.[2]

It thus prevents monotony of work from involving monotony of life.

Facts of this kind are to be found in the recent history of many trades: and they are of great importance when we are considering the way in which the modern organization of industry is tending to narrow the scope of each person's work, and thereby to render it monotonous. For those trades in which the work is most subdivided are those in which the chief muscular strain is most certain to be taken off by machinery; and thus the chief evil of monotonous work is much diminished. As Roscher says, it is monotony of life much more than monotony of work that is to be dreaded: monotony of work is an evil of the first order only when it involves monotony of life. Now when a person's employment requires much physical exertion, he is fit for nothing after his work; and unless his mental faculties are called forth in his work, they have little chance of being

[1] The jack-plane, used for making smooth large boards for floors and other purposes, used to cause heart disease, making carpenters as a rule old men by the time they were forty. Adam Smith tells us that "workmen, when they are liberally paid, are very apt to overwork themselves and to ruin their health and constitution in a few years. A carpenter in London, and in some other places, is not supposed to last in his utmost vigour above eight years. . . . Almost every class of artificers is subject to some particular infirmity occasioned by excessive application to their peculiar species of work." *Wealth of Nations*, Book I. chapter VII.

[2] The efficiency of labour in weaving has been increased twelve-fold and that in spinning six-fold during the last seventy years. In the preceding seventy years the improvements in spinning had already increased the efficiency of labour two-hundred-fold (see Ellison's *Cotton Trade of Great Britain*, ch. IV. and V.).

developed at all. But the nervous force is not very much exhausted in the ordinary work of a factory, at all events where there is not excessive noise, and where the hours of labour are not too long. The social surroundings of factory life stimulate mental activity in and out of working hours; and many of those factory workers, whose occupations are seemingly the most monotonous, have considerable intelligence and mental resource.[1]

It is true that the American agriculturist is an able man, and that his children rise rapidly in the world. But partly because land is plentiful, and he generally owns the farm that he cultivates, he has better social conditions than the English; he has always had to think for himself, and has long had to use and to repair complex machines. The English agricultural labourer has had many great disadvantages to contend with. Till recently he had little education; and he was in a great measure under a semi-feudal rule, which was not without its advantages, but which repressed enterprise and even in some degree self-respect. These narrowing causes are removed. He is now fairly well educated in youth. He learns to handle various machinery; he is less dependent on the good-will of any particular squire or group of farmers; and, since his work is more various, and educates intelligence more than the lowest grades of town work do, he is tending to rise both absolutely and relatively.

The economic use of specialized skill and machinery

§ 7. We must now proceed to consider what are the conditions under which the economies in production arising from division of labour can best be secured. It is obvious that the efficiency of specialized machinery or specialized skill is but one condition of its

[1] Perhaps the textile industries afford the best instance of work that used to be done by hand and is now done by machinery. They are especially prominent in England, where they give employment to nearly half a million males and more than half a million females, or more than one in ten of those persons who are earning independent incomes. The strain that is taken off human muscles in dealing even with those soft materials is shown by the fact that for every one of these million operatives there is used about one horse-power of steam, that is, about ten times as much as they would themselves exert if they were all strong men; and the history of these industries will serve to remind us that many of those who perform the more monotonous parts of manufacturing work are as a rule not skilled workers who have come down to it from a higher class of work, but unskilled workers who have risen to it. A great number of those who work in the Lancashire cotton-mills have come there from poverty-stricken districts of Ireland, while others are the descendants of paupers and people of weak physique, who were sent there in large numbers early in the last century from the most miserable conditions of life in the poorest agricultural districts, where the labourers were fed and housed almost worse than the animals whom they tended. Again, when regret is expressed that the cotton factory hands of New England have not the high standard of culture which prevailed among them a century ago, we must remember that the descendants of those factory workers have moved up to higher and more responsible posts, and include many of the ablest and wealthiest of the citizens of America. Those who have taken their places are in the process of being raised; they are chiefly French Canadians and Irish, who though they may learn in their new homes some of the vices of civilization, are yet much better off and have on the whole better opportunities of developing the higher faculties of themselves and their children than they had in their old homes.

IV, IX, 7.

requires that they should be fully occupied.

economic use; the other is that sufficient work should be found to keep it well employed. As Babbage pointed out, in a large factory "the master manufacturer by dividing the work to be executed into different processes, each requiring different degrees of skill or force, can purchase exactly that precise quantity of both which is necessary for each process; whereas if the whole work were executed by one workman that person must possess skill to perform the most difficult and sufficient strength to execute the most laborious of the operations into which the work is divided." The economy of production requires not only that each person should be employed constantly in a narrow range of work, but also that, when it is necessary for him to undertake different tasks, each of these tasks should be such as to call forth as much as possible of his skill and ability. Just in the same way the economy of machinery requires that a powerful turning-lathe when specially arranged for one class of work should be kept employed as long as possible on that work; and if there is occasion to employ it on other work, that should be such as to be worthy of the lathe, and not such as could have been done equally well by a much smaller machine.

But the most economic use of man as an agent of production is wasteful if he is not himself developed by it.

Here then, so far as the economy of production goes, men and machines stand on much the same footing: but while machinery is a mere implement of production, man's welfare is also its ultimate aim. We have already been occupied with the question whether the human race as a whole gains by carrying to an extreme that specialization of function which causes all the most difficult work to be done by a few people: but we have now to consider it more nearly with special reference to the work of business management. The main drift of the next three chapters is to inquire what are the causes which make different forms of business management the fittest to profit by their environment, and the most likely to prevail over others; but it is well that meanwhile we should have in our minds the question, how far they are severally fitted to benefit their environment.

Many of those economies in the use of specialized skill and machinery which are commonly regarded as within the reach of very large establishments, do not depend on the size of individual factories. Some depend on the aggregate volume of production of the kind in the neighbourhood; while others again, especially those connected with the growth of knowledge and the progress of the arts, depend chiefly on the aggregate volume of production in the whole civilized world. And here we may introduce two technical terms.

We may divide the economies arising from an increase in the scale of production of any kind of goods, into two classes—firstly, those dependent on the general development of the industry; and, secondly, those dependent on the resources of the individual houses of business engaged in it, on their organization and the efficiency of their management. We may call the former *external economies*, and the latter *internal economies*. In the present chapter we have been chiefly discussing internal economies; but we now proceed to examine those very important external economies which can often be secured by the concentration of many small businesses of a similar character in particular localities: or, as is commonly said, by the localization of industry.

IV, IX, 7.

External and *internal economies.*

CHAPTER X

INDUSTRIAL ORGANIZATION, CONTINUED. THE CONCENTRATION OF SPECIALIZED INDUSTRIES IN PARTICULAR LOCALITIES

IV, x, 1.

Even in early stages of civilization the production of some light and valuable wares has been localized.

§ 1. In an early stage of civilization every place had to depend on its own resources for most of the heavy wares which it consumed; unless indeed it happened to have special facilities for water carriage. But wants and customs changed slowly: and this made it easy for producers to meet the wants even of consumers with whom they had little communication; and it enabled comparatively poor people to buy a few expensive goods from a distance, in the security that they would add to the pleasure of festivals and holidays during a life-time, or perhaps even during two or three life-times. Consequently the lighter and more expensive articles of dress and personal adornment, together with spices and some kinds of metal implements used by all classes, and many other things for the special use of the rich, often came from astonishing distances. Some of these were produced only in a few places, or even only in one place; and they were diffused all over Europe partly by the agency of fairs [1] and professional pedlars, and partly by the producers themselves, who would vary their work by travelling on foot for many thousand miles to sell their goods, and see the world. These sturdy travellers took on themselves the risks of their little businesses; they enabled the production of certain classes of goods to be kept on the right track for satisfying the needs of purchasers far away; and they created new wants among consumers, by showing them at fairs or at their own houses new goods from distant lands. An industry concentrated in certain localities is commonly, though perhaps not quite accurately, described as a localized industry.[2]

This elementary localization of industry gradually prepared the

[1] Thus in the records of the Stourbridge Fair held near Cambridge we find an endless variety of light and precious goods from the older seats of civilization in the East and on the Mediterranean; some having been brought in Italian ships, and others having travelled by land as far as the shores of the North Sea.

[2] Not very long ago travellers in western Tyrol could find a strange and characteristic relic of this habit in a village called Imst. The villagers had somehow acquired a special art in breeding canaries: and their young men started for a tour to distant parts of Europe each with about fifty small cages hung from a pole over his shoulder, and walked on till they had sold all.

way for many of the modern developments of division of labour in the mechanical arts and in the task of business management. Even now we find industries of a primitive fashion localized in retired villages of central Europe, and sending their simple wares even to the busiest haunts of modern industry. In Russia the expansion of a family group into a village has often been the cause of a localized industry; and there are an immense number of villages each of which carries on only one branch of production, or even only a part of one.[1]

The various origins of localized industries; physical conditions;

§ 2. Many various causes have led to the localization of industries; but the chief causes have been physical conditions; such as the character of the climate and the soil, the existence of mines and quarries in the neighbourhood, or within easy access by land or water. Thus metallic industries have generally been either near mines or in places where fuel was cheap. The iron industries in England first sought those districts in which charcoal was plentiful, and afterwards they went to the neighbourhood of collieries.[2] Staffordshire makes many kinds of pottery, all the materials of which are imported from a long distance; but she has cheap coal and excellent clay for making the heavy "seggars" or boxes in which the pottery is placed while being fired. Straw plaiting has its chief home in Bedfordshire, where straw has just the right proportion of silex to give strength without brittleness; and Buckinghamshire beeches have afforded the material for the Wycombe chair-making. The Sheffield cutlery trade is due chiefly to the excellent grit of which its grindstones are made.

the patronage of courts;

Another chief cause has been the patronage of a court. The rich fold there assembled made a demand for goods of specially high quality, and this attracts skilled workmen from a distance, and educates those on the spot. When an Eastern potentate changed his residence—and, partly for sanitary reasons, this was constantly

[1] There are for instance over 500 villages devoted to various branches of wood-work; one village makes nothing but spokes for the wheels of vehicles, another nothing but the bodies and so on; and indications of a like state of things are found in the histories of oriental civilizations and in the chronicles of mediæval Europe. Thus for instance we read (Rogers' *Six Centuries of Work and Wages*, ch. IV.) of a lawyer's handy book written about 1250, which makes note of scarlet at Lincoln; blanket at Bligh; burnet at Beverley; russet at Colchester; linen fabrics at Shaftesbury, Lewes, and Aylsham; cord at Warwick and Bridport; knives at Marstead; needles at Wilton; razors at Leicester; soap at Coventry; horse girths at Doncaster; skins and furs at Chester and Shrewsbury and so on.

The localization of trades in England at the beginning of the eighteenth century is well described by Defoe, *Plan of English Commerce*, 85–7; *English Tradesmen*, II. 282–3.

[2] The later wanderings of the iron industry from Wales, Staffordshire and Shropshire to Scotland and the North of England are well shown in the tables submitted by Sir Lowthian Bell to the recent Commission on the Depression of Trade and Industry. See their Social Report, Part I. p. 320.

IV, x, 2.

the deliberate invitation of rulers.

done—the deserted town was apt to take refuge in the development of a specialized industry, which had owed its origin to the presence of the court. But very often the rulers deliberately invited artisans from a distance and settled them in a group together. Thus the mechanical faculty of Lancashire is said to be due to the influence of Norman smiths who were settled at Warrington by Hugo de Lupus in William the Conqueror's time. And the greater part of England's manufacturing industry before the era of cotton and steam had its course directed by settlements of Flemish and other artisans; many of which were made under the immediate direction of Plantagenet and Tudor kings. These immigrants taught us how to weave woollen and worsted stuffs, though for a long time we sent our cloths to the Netherlands to be fulled and dyed. They taught us how to cure herrings, how to manufacture silk, how to make lace, glass, and paper, and to provide for many other of our wants.[1]

The industrial development of nations waits upon opportunities and upon character.

But how did these immigrants learn their skill? Their ancestors had no doubt profited by the traditional arts of earlier civilizations on the shores of the Mediterranean and in the far East: for nearly all important knowledge has long deep roots stretching downwards to distant times; and so widely spread have been these roots, so ready to send up shoots of vigorous life, that there is perhaps no part of the old world in which there might not long ago have flourished many beautiful and highly skilled industries, if their growth had been favoured by the character of the people, and by their social and political institutions. This accident or that may have determined whether any particular industry flourished in any one town; the industrial character of a whole country even may have been largely influenced by the richness of her soil and her mines, and her facilities for commerce. Such natural advantages may themselves have stimulated free industry and enterprise: but it is the existence of these last, by whatever means they may have been promoted, which has been the supreme condition for the growth of noble forms of the arts of life. In sketching the history of free industry and enterprise we have already incidentally traced the outline of the causes which have localized the industrial leadership of the world now in this country and now in that. We have seen how physical nature acts on man's energies, how he is stimulated by an invigorating climate, and how he is encouraged to bold ventures by the

[1] Fuller says that Flemings started manufactures of cloths and fustians in Norwich, of baizes in Sudbury, of serges in Colchester and Taunton, of cloths in Kent, Gloucestershire, Worcestershire, Westmorland, Yorkshire, Hants, Berks, and Sussex, of kerseys in Devonshire, and of Levant cottons in Lancashire. Smiles' *Huguenots in England and Ireland*, p. 109. See also Lecky's *History of England in the eighteenth century*, ch. II.

opening out of rich fields for his work: but we have also seen how the use he makes of these advantages depends on his ideals of life, and how inextricably therefore the religious, political and economic threads of the world's history are interwoven; while together they have been bent this way or that by great political events and the influence of the strong personalities of individuals.

The causes which determine the economic progress of nations belong to the study of international trade and therefore lie outside of our present view. But for the present we must turn aside from these broader movements of the localization of industry, and follow the fortunes of groups of skilled workers who are gathered within the narrow boundaries of a manufacturing town or a thickly peopled industrial district.

The advantages of localized industries; hereditary skill;

§ 3. When an industry has thus chosen a locality for itself, it is likely to stay there long: so great are the advantages which people following the same skilled trade get from near neighbourhood to one another. The mysteries of the trade become no mysteries; but are as it were in the air, and children learn many of them unconsciously. Good work is rightly appreciated, inventions and improvements in machinery, in processes and the general organization of the business have their merits promptly discussed: if one man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes the source of further new ideas. And presently subsidiary trades grow up in the neighbourhood, supplying it with implements and materials, organizing its traffic, and in many ways conducing to the economy of its material.

the growth of subsidiary trades;

Again, the economic use of expensive machinery can sometimes be attained in a very high degree in a district in which there is a large aggregate production of the same kind, even though no individual capital employed in the trade be very large. For subsidiary industries devoting themselves each to one small branch of the process of production, and working it for a great many of their neighbours, are able to keep in constant use machinery of the most highly specialized character, and to make it pay its expenses, though its original cost may have been high, and its rate of depreciation very rapid.

the use of highly specialized machinery;

Again, in all but the earliest stages of economic development a localized industry gains a great advantage from the fact that it offers a constant market for skill. Employers are apt to resort to any place where they are likely to find a good choice of workers with the special skill which they require; while men seeking employment naturally go to places where there are many employers who need such skill as theirs and where therefore it is likely to find a good

a local market for special skill.

IV, x, 3. market. The owner of an isolated factory, even if he has access to a plentiful supply of general labour, is often put to great shifts for want of some special skilled labour; and a skilled workman, when thrown out of employment in it, has no easy refuge. Social forces here co-operate with economic: there are often strong friendships between employers and employed: but neither side likes to feel that in case of any disagreeable incident happening between them, they must go on rubbing against one another: both sides like to be able easily to break off old associations should they become irksome. These difficulties are still a great obstacle to the success of any business in which special skill is needed, but which is not in the neighbourhood of others like it: they are however being diminished by the railway, the printing-press and the telegraph.

Sometimes however a localized industry makes too extensive demands for one kind of labour.

On the other hand a localized industry has some disadvantages as a market for labour if the work done in it is chiefly of one kind, such for instance as can be done only by strong men. In those iron districts in which there are no textile or other factories to give employment to women and children, wages are high and the cost of labour dear to the employer, while the average money earnings of each family are low. But the remedy for this evil is obvious, and is found in the growth in the same neighbourhood of industries of a supplementary character. Thus textile industries are constantly found congregated in the neighbourhood of mining and engineering industries, in some cases having been attracted by almost imperceptible steps; in others, as for instance at Barrow, having been started deliberately on a large scale in order to give variety of employment in a place where previously there had been but little demand for the work of women and children.

The advantages of variety of employment are combined with those of localized industries in some of our manufacturing towns, and this is a chief cause of their continued growth. But on the other hand the value which the central sites of a large town have for trading purposes, enables them to command much higher ground-rents than the situations are worth for factories, even when account is taken of this combination of advantages: and there is a similar competition for dwelling space between the employees of the trading houses and the factory workers. The result is that factories now congregate in the outskirts of large towns and in manufacturing districts in their neighbourhood rather in the towns themselves.[1]

[1] The movement has been specially conspicuous in the case of the textile manufacturers. Manchester, Leeds and Lyons are still chief centres of the trade in cotton, woollen and silk stuffs, but they do not now themselves produce any great part of the goods to which they owe their chief fame. On the other hand London and Paris

Different industries in the same neighbourhood mitigate each other's depressions.

A district which is dependent chiefly on one industry is liable to extreme depression, in case of a falling-off in the demand for its produce, or of a failure in the supply of the raw material which it uses. This evil again is in a great measure avoided by those large towns or large industrial districts in which several distinct industries are strongly developed. If one of them fails for a time, the others are likely to support it indirectly; and they enable local shopkeepers to continue their assistance to workpeople in it.

Localization of shops.

So far we have discussed localization from the point of view of the economy of production. But there is also the convenience of the customer to be considered. He will go to the nearest shop for a trifling purchase; but for an important purchase he will take the trouble of visiting any part of the town where he knows that there are specially good shops for his purpose. Consequently shops which deal in expensive and choice objects tend to congregate together; and those which supply ordinary domestic needs do not.[1]

The influence of improved means of communication on the geographical distribution of industries.

§ 4. Every cheapening of the means of communication, every new facility for the free interchange of ideas between distant places alters the action of the forces which tend to localize industries. Speaking generally we must say that a lowering of tariffs, or of freights for the transport of goods, tends to make each locality buy more largely from a distance what it requires; and thus tends to concentrate particular industries in special localities: but on the other hand everything that increases people's readiness to migrate from one place to another tends to bring skilled artisans to ply their crafts near to the consumers who will purchase their wares. These two opposing tendencies are well illustrated by the recent history of the English people.

Illustration from the recent history of England.

On the one hand the steady cheapening of freights, the opening of railways from the agricultural districts of America and India to the sea-board, and the adoption by England of a free-trade policy, have led to a great increase in her importation of raw produce. But on the other hand the growing cheapness, rapidity and comfort of foreign travel, are inducing her trained business men and her skilled artisans to pioneer the way for new industries in other lands, and to help them to manufacture for themselves goods which they have been wont to buy from England. English mechanics have taught people in almost every part of the world how to use English

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retain their positions as the two largest manufacturing towns of the world, Philadelphia coming third. The mutual influences of the localization of industry, the growth of towns and habits of town life, and the development of machinery are well discussed in Hobson's *Evolution of Capitalism*.

[1] Comp. Hobson, *l. c.* p. 114.

IV, x, 4. machinery, and even how to make similar machinery; and English miners have opened out mines of ore which have diminished the foreign demand for many of England's products.

One of the most striking movements towards the specialization of a country's industries, which history records, is the rapid increase of the non-agricultural population of England in recent times. The exact nature of this change is however liable to be misunderstood; and its interest is so great, both for its own sake, and on account of the illustrations it affords of the general principles which we have been discussing in the preceding chapter and in this, that we may with advantage pause here to consider it a little.

The diminution of her agricultural population is less than at first sight appears.

In the first place, the real diminution of England's agricultural industries is not so great as at first sight appears. It is true that in the Middle Ages three-fourths of the people were reckoned as agriculturists; that only one in nine was returned to the last census as engaged in agriculture, and that perhaps not more than one in twelve will be so returned at the next census. But it must be remembered that the so-called agricultural population of the Middle Ages were not exclusively occupied with agriculture; they did for themselves a great part of the work that is now done by brewers and bakers, by spinners and weavers, by bricklayers and carpenters, by dressmakers and tailors and by many other trades. These self-sufficing habits died slowly; but most of them had nearly disappeared by the beginning of the last century; and it is probable that the labour spent on the land at this time was not a much less part of the whole industry of the country than in the Middle Ages: for, in spite of her ceasing to export wool and wheat, there was so great an increase in the produce forced from her soil, that the rapid improvement in the arts of her agriculturists scarcely availed to hold in check the action of the law of diminishing return. But gradually a great deal of labour has been diverted from the fields to making expensive machinery for agricultural purposes. This change did not exert its full influence upon the numbers of those who were reckoned as agriculturists so long as the machinery was drawn by horses: for the work of tending them and supplying them with food was regarded as agricultural. But in recent years a rapid growth of the use of steam power in the fields has coincided with the increased importation of farm produce. The coal-miners who supply these steam-engines with fuel, and the mechanics who make them and manage them in the fields are not reckoned as occupied on the land, though the ultimate aim of their labour is to promote its cultivation.

The real diminution then of England's agriculture is not so great as at first sight appears; but there has been a change in its distribution. Many tasks which used once to be performed by agricultural labourers are now done by specialized workers who are classed as in the building, or road-making industries, as carriers and so on. And, partly for this reason the number of people who reside in purely agricultural districts has seldom diminished fast; and has often increased, even though the number of those engaged in agriculture has been diminishing rapidly. IV, x, 4.

Changes in the distribution of the agricultural population within the country.

Attention has already been called to the influence which the importation of agricultural produce exerts in altering the relative values of different soils: those falling most in value which depended chiefly on their wheat crops, and which were not naturally fertile, though they were capable of being made to yield fairly good crops by expensive methods of cultivation. Districts in which such soils predominate, have contributed more than their share to the crowds of agricultural labourers who have migrated to the large towns; and thus the geographical distribution of industries within the country has been still further altered. A striking instance of the influence of the new means of transport is seen in those pastoral districts in the remoter parts of the United Kindom, which send dairy products by special express trains to London and other large towns, meanwhile drawing their own supplies of wheat from the further shores of the Atlantic or even the Pacific Ocean.

Those set free from agriculture have gone not to manufactures

But next, the changes of recent years have not, as would at first sight appear probable, increased the proportion of the English people who are occupied in manufactures. The output of England's manufactures is certainly many times as great now as it was at the middle of the last century; but those occupied in manufacture of every kind were as large a percentage of the population in 1851 as in 1901; although those who make the machinery and implements which do a great part of the work of English agriculture, swell the numbers of the manufacturers.

but chiefly to industries in which there has been no great increase in the efficiency of labour.

The chief explanation of this result lies in the wonderful increase in recent years of the power of machinery. This has enabled us to produce ever increasing supplies of manufactures of almost every kind both for our own use and for exportation without requiring any considerable increase in the number of people who tend the machines. And therefore we have been able to devote the labour set free from agriculture chiefly to supplying those wants in regard to which the improvements of machinery help us but little: the efficiency of machinery has prevented the industries localized in England from

IV, x, 4. becoming as exclusively mechanical as they otherwise would. Prominent among the occupations which have increased rapidly since 1851 in England at the expense of agriculture are the service of Government, central and local; education of all grades; medical service; musical, theatrical and other entertainments, besides mining, building, dealing and transport by road and railway. In none of these is very much direct help got from new inventions: man's labour is not much more efficient in them now than it was a century ago: and therefore if the wants for which they make provision increase in proportion to our general wealth, it is only to be expected that they should absorb a constantly growing proportion of the industrial population. Domestic servants increased rapidly for some years; and the total amount of work which used to fall to them is now increasing faster than ever. But much of it is now done, often with the aid of machinery, by persons in the employment of clothiers of all kinds, of hotel proprietors, confectioners, and even by various messengers from grocers, fishmongers and others who call for orders, unless they are sent by telephone. These changes have tended to increase the specialization and the localization of industries.

Transition to the subject of the next chapter.

Passing away from this illustration of the action of modern forces on the geographical distribution of industries, we will resume our inquiry as to how far the full economies of division of labour can be obtained by the concentration of large numbers of small businesses of a similar kind in the same locality; and how far they are attainable only by the aggregation of a large part of the business of the country into the hands of a comparatively small number of rich and powerful firms, or, as is commonly said, by production on a large scale; or, in other words, how far the economies of production on a large scale must needs be *internal*, and how far they can be *external*.[1]

[1] The percentage of the population occupied in the textile industries in the United Kingdom fell from 3·13 in 1881 to 2·43 in 1901; partly because much of the work done by them has been rendered so simple by semi-automatic machinery that it can be done fairly well by peoples that are in a relatively backward industrial condition; and partly because the chief textile goods retain nearly the same simple character as they had thirty or even three thousand years ago. On the other hand manufactures of iron and steel (including shipbuilding) have increased so greatly in complexity as well as in volume of output, that the percentage of the population occupied in them rose from 2·39 in 1881 to 3·01 in 1901; although much greater advance has been meanwhile made in the machinery and methods employed in them than in the textile group. The remaining manufacturing industries employed about the same percentage of the people in 1901 as in 1881. In the same time the tonnage of British shipping cleared from British ports increased by one half; and the number of dock labourers doubled, but that of seamen has slightly diminished. These facts are to be explained partly by vast improvements in the construction of ships and all appliances connected with them, and partly by the transference to dock labourers of nearly all tasks connected with handling the cargo some of which were even recently

performed by the crew. Another marked change is the increased aggregate occupation of women in manufactures, though that of married women appears to have diminished, and that of children has certainly diminished greatly.

The Summary Tables of the Census of 1911, published in 1915, show so many changes in classification since 1901 that no general view of recent developments can be safely made. But Table 64 of that *Report* and Prof. D. Caradog Jones' paper read before the Royal Statistical Society in December 1914 show that the developments of 1901-1911 differ from their predecessors in detail rather than in general character.

CHAPTER XI

INDUSTRIAL ORGANIZATION, CONTINUED. PRODUCTION ON A LARGE SCALE

IV, xi, 1.

The typical industries for our present purpose are those engaged in manufacture.

§ 1. The advantages of production on a large scale are best shown in manufacture; under which head we may include all businesses engaged in working up material into forms in which it will be adapted for sale in distant markets. The characteristic of manufacturing industries which makes them offer generally the best illustrations of the advantages of production on a large scale, is their power of choosing freely the locality in which they will do their work. They are thus contrasted on the one hand with agriculture and other extractive industries (mining, quarrying, fishing, etc.), the geographical distribution of which is determined by nature; and on the other hand with industries that make or repair things to suit the special needs of individual consumers, from whom they cannot be far removed, at all events without great loss.[1]

The economy of material.

The chief advantages of production on a large scale are economy of skill, economy of machinery and economy of materials: but the last of these is rapidly losing importance relatively to the other two. It is true that an isolated workman often throws away a number of small things which would have been collected and turned to good account in a factory;[2] but waste of this kind can scarcely occur in a localized manufacture even if it is in the hands of small men; and there is not very much of it in any branch of industry in modern England, except agriculture and domestic cooking. No doubt many of the most important advances of recent years have been due to the utilizing of what had been a waste product; but this has been generally due to a distinct invention, either chemical or mechanical, the use of which has been indeed promoted by minute subdivision of labour, but has not been directly dependent on it.[3]

[1] "Manufacture" is a term which has long lost any connection with its original use: and is now applied to those branches of production where machine and not hand work is most prominent. Roscher made the attempt to bring it back nearer to its old use by applying it to domestic as opposed to factory industries: but it is too late to do this now.

[2] See Babbage's instance of the manufacture of horn. *Economy of Manufactures*, ch. XXII.

[3] Instances are the utilization of the waste from cotton, wool, silk and other textile materials; and of the by-products in the metallurgical industries, in the manufacture of soda and gas, and in the American mineral oil and meat packing industries.

Again, it is true that when a hundred sets of furniture, or of clothing, have to be cut out on exactly the same pattern, it is worth while to spend great care on so planning the cutting out of the boards or the cloth, that only a few small pieces are wasted. But this is properly an economy of skill; one planning is made to suffice for many tasks and therefore can be done well and carefully. We may pass then to the economy of machinery.

The advantages of a large factory as regards the use of specialized machinery.

§ 2. In spite of the aid which subsidiary industries can give to small manufacturers, where many in the same branch of trade are collected in one neighbourhood,[1] they are still placed under a great disadvantage by the growing variety and expensiveness of machinery. For in a large establishment there are often many expensive machines each made specially for one small use. Each of them requires space in a good light, and thus stands for something considerable in the rent and general expenses of the factory; and independently of interest and the expense of keeping it in repair, a heavy allowance must be made for depreciation in consequence of its being probably improved upon before long.[2] A small manufacturer must therefore have many things done by hand or by imperfect machinery, though he knows how to have them done better and cheaper by special machinery, if only he could find constant employment for it.

Advantages with regard to the invention of improved machinery.

But next, a small manufacturer may not always be acquainted with the best machinery for his purpose. It is true that if the industry in which he is engaged has been long established on a large scale, his machinery will be well up to the mark, provided he can afford to buy the best in the market. In agriculture and the cotton industries, for instance, improvements in machinery are devised almost exclusively by machine makers; and they are accessible to all, at any rate on the payment of a royalty for patent right. But this is not the case in industries that are as yet in an early stage of development or are rapidly changing their form; such as the chemical industries, the watchmaking industry and some branches of the jute and silk manufactures; and in a host of trades that are constantly springing up to supply some new want or to work up some new material.

[1] See the preceding chapter, § 3.

[2] The average time which a machine will last before being superseded is in many trades not more than fifteen years, while in some it is ten years or even less. There is often a loss on the use of a machine unless it earns every year twenty per cent. on its cost; and when the operation performed by such a machine costing £500 adds only a hundredth part to the value of the material that passes through it—and this is not an extreme case—there will be a loss on its use unless it can be applied in producing at least £10,000 worth of goods annually.

IV, XI, 2.

The small manufacturer cannot often afford to experiment.

In all such trades new machinery and new processes are for the greater part devised by manufacturers for their own use. Each new departure is an experiment which may fail; those which succeed must pay for themselves and for the failure of others; and though a small manufacturer may think he sees his way to an improvement, he must reckon on having to work it out tentatively, at considerable risk and expense and with much interruption to his other work: and even if he should be able to perfect it, he is not likely to be able to make the most of it. For instance, he may have devised a new speciality, which would get a large sale if it could be brought under general notice: but to do this would perhaps cost many thousand pounds; and, if so, he will probably have to turn his back on it. For it is almost impossible for him to discharge, what Roscher calls a characteristic task of the modern manufacturer, that of creating new wants by showing people something which they had never thought of having before; but which they want to have as soon as the notion is suggested to them: in the pottery trade for example the small manufacturer cannot afford even to make experiments with new patterns and designs except in a very tentative way. His chance is better with regard to an improvement in making things for which there is already a good market. But even here he cannot get the full benefit of his invention unless he patents it; and sells the right to use it; or borrows some capital and extends his business; or lastly changes the character of his business and devotes his capital to that particular stage of the manufacture to which his improvement applies. But after all such cases are exceptional: the growth of machinery in variety and expensiveness presses hard on the small manufacturer everywhere. It has already driven him completely out of some trades and is fast driving him out of others.[1]

There are however some trades in which the advantages which a

[1] In many businesses only a small percentage of improvements are patented. They consist of many small steps, which it would not be worth while to patent one at a time. Or their chief point lies in noticing that a certain thing ought to be done; and to patent one way of doing it, is only to set other people to work to find out other ways of doing it against which the patent cannot guard. If one patent is taken out, it is often necessary to "block" it, by patenting other methods of arriving at the same result; the patentee does not expect to use them himself, but he wants to prevent others from using them. All this involves worry and loss of time and money: and the large manufacturer prefers to keep his improvement to himself and get what benefit he can by using it. While if the small manufacturer takes out a patent, he is likely to be harassed by infringements: and even though he may win "with costs" the actions in which he tries to defend himself, he is sure to be ruined by them if they are numerous. It is generally in the public interest that an improvement should be published, even though it is at the same time patented. But if it is patented in England and not in other countries, as is often the case, English manufacturers may not use it, even though they were just on the point of finding it out for themselves before it was patented; while foreign manufacturers learn all about it and can use it freely.

large factory derives from the economy of machinery almost vanish as soon as a moderate size has been reached. For instance in cotton spinning, and calico weaving, a comparatively small factory will hold its own and give constant employment to the best known machines for every process: so that a large factory is only several parallel smaller factories under one roof; and indeed some cotton-spinners, when enlarging their works, think it best to add a weaving department. In such cases the large business gains little or no economy in machinery; and even then it generally saves something in building, particularly as regards chimneys, and in the economy of steam power, and in the management and repairs of engines and machinery. Large soft-goods factories have carpenters' and mechanics' shops, which diminish the cost of repairs, and prevent delays from accidents to the plant.[1]

But in some trades a factory of moderate size can have the best machinery.

Akin to these last, there are a great many advantages which a large factory, or indeed a large business of almost any kind, nearly always has over a small one. A large business buys in great quantities and therefore cheaply; it pays low freights and saves on carriage in many ways, particularly if it has a railway siding. It often sells in large quantities, and thus saves itself trouble; and yet at the same time it gets a good price, because it offers conveniences to the customer by having a large stock from which he can select and at once fill up a varied order; while its reputation gives him confidence. It can spend large sums on advertising by commercial travellers and in other ways; its agents give it trustworthy information on trade and personal matters in distant places, and its own goods advertise one another.

Advantages of a large business, or of associated groups of businesses, in buying and selling.

The economies of highly organized buying and selling are among the chief causes of the present tendency towards the fusion of many businesses in the same industry or trade into single huge aggregates; and also of trading federations of various kinds, including German cartels and centralized co-operative associations. They have also always promoted the concentration of business risks in the hands

[1] It is a remarkable fact that cotton and some other textile factories form an exception to the general rule that the capital required per head of the workers is generally greater in a large factory than in a small one. The reason is that in most other businesses the large factory has many things done by expensive machines which are done by hand in a small factory; so that while the wages bill is less in proportion to the output in a large factory than in a small one, the value of the machinery and the factory space occupied by the machinery is much greater. But in the simpler branches of the textile trades, small works have the same machinery as large works have; and since small steam-engines, etc. are proportionately more expensive than large ones, they require a greater fixed capital in proportion to their output than larger factories do; and they are likely to require a floating capital also rather greater in proportion.

IV, XI, 3, 4.

of large capitalists who put out the work to be done by smaller men.[1]

Advantages of a large factory as regards specialized skill,

§ 3. Next, with regard to the economy of skill. Everything that has been said with regard to the advantages which a large establishment has in being able to afford highly specialized machinery applies equally with regard to highly specialized skill. It can contrive to keep each of its employees constantly engaged in the most difficult work of which he is capable, and yet so to narrow the range of his work that he can attain that facility and excellence which come from long-continued practice. But enough has already been said on the advantage of division of labour: and we may pass to an important though indirect advantage which a manufacturer derives from having a great many men in his employment.

the selection of leading men, etc.

The large manufacturer has a much better chance than a small one has, of getting hold of men with exceptional natural abilities, to do the most difficult part of his work—that on which the reputation of his establishment chiefly depends. This is occasionally important as regards mere handiwork in trades which require much taste and originality, as for instance that of a house decorator, and in those which require exceptionally fine workmanship, as for instance that of a manufacturer of delicate mechanism.[2] But in most businesses its chief importance lies in the facilities which it gives to the employer for the selection of able and tried men, men whom he trusts and who trust him, to be his foremen and heads of departments. We are thus brought to the central problem of the modern organization of industry, viz. that which relates to the advantages and disadvantages of the subdivision of the work of business management.

The subdivision of the work of business management: advantages of the large manufacturer;

§ 4. The head of a large business can reserve all his strength for the broadest and most fundamental problems of his trade: he must indeed assure himself that his managers, clerks and foremen are the right men for their work, and are doing their work well; but beyond this he need not trouble himself much about details. He can keep his mind fresh and clear for thinking out the most difficult and vital problems of his business; for studying the broader movements of

[1] See below IV. XII. 3.

[2] Thus Boulton writing in 1770 when he had 700 or 800 persons employed as metallic artists and workers in tortoiseshell, stones, glass, and enamel, says:—"I have trained up many, and am training up more, plain country lads into good workmen; and wherever I find indications of skill and ability, I encourage them. I have likewise established correspondence with almost every mercantile town in Europe, and am thus regularly supplied with orders for the grosser articles in common demand, by which I am enabled to employ such a number of hands as to provide me with an ample choice of artists for the finer branches of work: and I am thus encouraged to erect and employ a more extensive apparatus than it would be prudent to employ for the production of the finer articles only." Smiles' *Life of Boulton*, p. 128.

the markets, the yet undeveloped results of current events at home and abroad; and for contriving how to improve the organization of the internal and external relations of his business. IV, XI, 4.

For much of this work the small employer has not the time if he has the ability; he cannot take so broad a survey of his trade, or look so far ahead; he must often be content to follow the lead of others. And he must spend much of his time on work that is below him; for if he is to succeed at all, his mind must be in some respects of a high quality, and must have a good deal of originating and organizing force; and yet he must do much routine work.

those of the small manufacturer.

On the other hand the small employer has advantages of his own. The master's eye is everywhere; there is no shirking by his foremen or workmen, no divided responsibility, no sending half-understood messages backwards and forwards from one department to another. He saves much of the book-keeping, and nearly all of the cumbrous system of checks that are necessary in the business of a large firm; and the gain from this source is of very great importance in trades which use the more valuable metals and other expensive materials.

And though he must always remain at a great disadvantage in getting information and in making experiments, yet in this matter the general course of progress is on his side. For External economies are constantly growing in importance relatively to Internal in all matters of Trade-knowledge: newspapers, and trade and technical publications of all kinds are perpetually scouting for him and bringing him much of the knowledge he wants—knowledge which a little while ago would have been beyond the reach of anyone who could not afford to have well-paid agents in many distant places. Again, it is to his interest also that the secrecy of business is on the whole diminishing, and that the most important improvements in method seldom remain secret for long after they have passed from the experimental stage. It is to his advantage that changes in manufacture depend less on mere rules of thumb and more on broad developments of scientific principle; and that many of these are made by students in the pursuit of knowledge for its own sake, and are promptly published in the general interest. Although therefore the small manufacturer can seldom be in the front of the race of progress, he need not be far from it, if he has the time and the ability for availing himself of the modern facilities for obtaining knowledge. But it is true that he must be exceptionally strong if he can do this without neglecting the minor but necessary details of the business.

IV, XI, 5.

Rapid growth of firms in some trades which offer great economies to production on a large scale.

§ 5. In agriculture and other trades in which a man gains no very great new economies by increasing the scale of his production, it often happens that a business remains of about the same size for many years, if not for many generations. But it is otherwise in trades in which a large business can command very important advantages, which are beyond the reach of a small business. A new man, working his way up in such a trade, has to set his energy and flexibility, his industry and care for small details, against the broader economies of his rivals with their larger capital, their higher specialization of machinery and labour, and their larger trade connection. If then he can double his production, and sell at anything like his old rate, he will have more than doubled his profits. This will raise his credit with bankers and other shrewd lenders; and will enable him to increase his business further, and to attain yet further economies, and yet higher profits: and this again will increase his business and so on. It seems at first that no point is marked out at which he need stop. And it is true that, if, as his business increased, his faculties adapted themselves to his larger sphere, as they had done to his smaller; if he retained his originality, and versatility and power of initiation, his perseverance, his tact and his good luck for very many years together; he might then gather into his hands the whole volume of production in his branch of trade for his district. And if his goods were not very difficult of transport, nor of marketing, he might extend this district very wide, and attain something like a limited monopoly; that is, of a monopoly limited by the consideration that a very high price would bring rival producers into the field.

But long before this end is reached, his progress is likely to be arrested by the decay, if not of his faculties, yet of his liking for energetic work. The rise of his firm may be prolonged if he can hand down his business to a successor almost as energetic as himself.[1] But the continued very rapid growth of his firm requires the presence of two conditions which are seldom combined in the same industry. There are many trades in which an individual producer could secure much increased "internal" economies by a great increase of his output; and there are many in which he could market that output easily; yet there are few in which he could do both. And this is not an accidental, but almost a necessary result.

Where marketing is easy, the

For in most of those trades in which the economies of production on a large scale are of first-rate importance, marketing is difficult.

[1] Means to this end and their practical limitations are discussed in the latter half of the following chapter.

There are, no doubt, important exceptions. A producer may, for instance, obtain access to the whole of a large market in the case of goods which are so simple and uniform that they can be sold wholesale in vast quantities. But, most goods of this kind are raw produce; and nearly all the rest are plain and common, such as steel rails or calico; and their production can be reduced to routine, for the very reason that they are plain and common. Therefore in the industries which produce them, no firm can hold its own at all unless equipped with expensive appliances of nearly the latest type for its main work; while subordinate operations can be performed by subsidiary industries; and in short there remains no very great difference between the economies available by a large and by a very large firm; and the tendency of large firms to drive out small ones has already gone so far as to exhaust most of the strength of those forces by which it was originally promoted.

economies of production on a large scale are mostly open to firms of moderate size.

But many commodities with regard to which the tendency to increasing return acts strongly are, more or less, specialities: some of them aim at creating a new want, or at meeting an old want in a new way. Some of them are adapted to special tastes, and can never have a very large market; and some have merits that are not easily tested, and must win their way to general favour slowly. In all such cases the sales of each business are limited, more or less according to circumstances, to the particular market which it has slowly and expensively acquired; and though the production itself might be economically increased very fast, the sale could not.

But in specialities marketing is difficult.

Lastly, the very conditions of an industry which enable a new firm to attain quickly command over new economies of production, render that firm liable to be supplanted quickly by still younger firms with yet newer methods. Especially where the powerful economies of production on a large scale are associated with the use of new appliances and new methods, a firm which has lost the exceptional energy which enabled it to rise, is likely ere long quickly to decay; and the full life of a large firm seldom lasts very long.

Causes which enable firms to rise quickly, often hasten their fall.

§ 6. The advantages which a large business has over a small one are conspicuous in manufacture, because, as we have noticed, it has special facilities for concentrating a great deal of work in a small area. But there is a strong tendency for large establishments to drive out small ones in many other industries. In particular the retail trade is being transformed, the small shopkeeper is losing ground daily.

Advantages of large businesses of other kinds.

Let us look at the advantages which a large retail shop or store has in competing with its smaller neighbours. To begin with, it

In retail trade they

IV, xi, 6. can obviously buy on better terms, it can get its goods carried more cheaply, and can offer a larger variety to meet the taste of customers. Next, it has a great economy of skill: the small shopkeeper, like the small manufacturer, must spend much of his time in routine work that requires no judgment: whereas the head of a large establishment, and even in some cases his chief assistants, spend their whole time in using their judgment. Until lately these advantages have been generally outweighed by the greater facilities which the small shopkeeper has for bringing his goods to the door of his customers; for humouring their several tastes; and for knowing enough of them individually to be able safely to lend them capital, in the form of selling them goods on credit.

are on the increase

owing to the growth of cash payments

But within recent years there have been many changes all telling on the side of large establishments. The habit of buying on credit is passing away; and the personal relations between shopkeeper and customer are becoming more distant. The first change is a great step forwards: the second is on some accounts to be regretted, but not on all; for it is partly due to the fact that the increase of true self-respect among the wealthier classes is making them no longer care for the subservient personal attentions they used to require. Again, the growing value of time makes people less willing than they were to spend several hours in shopping; they now often prefer to spend a few minutes in writing out a long list of orders from a varied and detailed price-list; and this they are enabled to do easily by the growing facilities for ordering and receiving parcels by post and in other ways. And when they do go shopping, tramcars and local trains are often at hand to take them easily and cheaply to the large central shops of a neighbouring town. All these changes render it more difficult than it was for the small shopkeeper to hold his own even in the provision trade, and others in which no great variety of stock is required.

and the increasing variety of the goods in common demand.

But in many trades the ever-growing variety of commodities, and those rapid changes of fashion which now extend their baneful influence through almost every rank of society, weight the balance even more heavily against the small dealer, for he cannot keep a sufficient stock to offer much variety of choice, and if he tries to follow any movement of fashion closely, a larger proportion of his stock will be left stranded by the receding tide than in the case of a large shopkeeper. Again, in some branches of the clothing and furniture and other trades the increasing cheapness of machine-made goods is leading people to buy ready-made things from a large store instead of having them made to order by some small maker and dealer in

their neighbourhood. Again, the large shopkeeper, not content with receiving travellers from the manufacturers, makes tours either himself or by his agent in the most important manufacturing districts at home and abroad; and he thus often dispenses with middlemen between him and the manufacturer. A tailor with moderate capital shows his customers specimens of many hundreds of the newest cloths, and perhaps orders by telegraph the selected cloth to be sent by parcels' post. Again, ladies often buy their materials direct from the manufacturer, and get them made up by dressmakers who have scarcely any capital. Small shopkeepers seem likely always to retain some hold of the minor repairing trades: and they keep their own fairly well in the sale of perishable food, especially to the working classes, partly in consequence of their being able to sell goods on credit and to collect small debts. In many trades however a firm with a large capital prefers having many small shops to one large one. Buying, and whatever production is desirable, is concentrated under a central management; and exceptional demands are met from a central reserve, so that each branch has large resources, without the expense of keeping a large stock. The branch manager has nothing to divert his attention from his customers; and, if an active man, with direct interest in the success of his branch, may prove himself a formidable rival to the small shopkeeper; as has been shown in many trades connected with clothing and food.

The carrying trades.

§ **7.** We may next consider those industries whose geographical position is determined by the nature of their work.

Country carriers and a few cabmen are almost the only survivals of small industry in the carrying trade. Railways and tramways are constantly increasing in size, and the capital required to work them is increasing at an even greater rate. The growing intricacy and variety of commerce is adding to the advantages which a large fleet of ships under one management derives from its power of delivering goods promptly, and without breach of responsibility, in many different ports; and as regards the vessels themselves time is on the side of large ships, especially in the passenger trade.[1] As a consequence the arguments in favour of the State's undertaking

[1] A ship's carrying power varies as the cube of her dimensions, while the resistance offered by the water increases only a little faster than the square of her dimensions; so that a large ship requires less coal in proportion to its tonnage than a small one. It also requires less labour, especially that of navigation: while to passengers it offers greater safety and comfort, more choice of company and better professional attendance. In short, the small ship has no chance of competing with the large ship between ports which large ships can easily enter, and between which the traffic is sufficient to enable them to fill up quickly.

IV, XI, 7. business are stronger in some branches of the carrying trade than in any other, except the allied undertakings of carrying away refuse, and bringing in water, gas, etc.[1]

Mines and quarries. The contest between large and small mines and quarries has not so clearly marked a tendency. The history of the State management of mines is full of very dark shadows; for the business of mining depends too much on the probity of its managers and their energy and judgment in matters of detail as well as of general principle, to be well managed by State officials: and for the same reason the small mine or quarry may fairly be expected, other things being equal, to hold its own against the large one. But in some cases the cost of deep shafts, of machinery and of establishing means of communication, are too great to be borne by any but a very large business.

The case of agriculture is deferred. In agriculture there is not much division of labour, and there is no production on a very large scale; for a so-called "large farm" does not employ a tenth part of the labour which is collected in a factory of moderate dimensions. This is partly due to natural causes, to the changes of the seasons and to the difficulty of concentrating a great deal of labour in any one place; but it is partly also due to causes connected with varieties of land tenure. And it will be best to postpone discussion of all of them till we come to study demand and supply in relation to land in the sixth Book.

[1] It is characteristic of the great economic change of the last hundred years that when the first railway bills were passed, provision was made for allowing private individuals to run their own conveyances on them just as they do on a highway or a canal; and now we find it difficult to imagine how people could have expected, as they certainly did, that this plan would prove a practicable one.

CHAPTER XII

INDUSTRIAL ORGANIZATION, CONTINUED. BUSINESS MANAGEMENT

§ 1. HITHERTO we have been considering the work of management chiefly in regard to the operations of a manufacturing or other business employing a good deal of manual labour. But we now have to consider more carefully the variety of the functions which business men discharge; the manner in which they are distributed among the heads of a large business, and again between different classes of business which coöperate in allied branches of production and marketing. And incidentally we have to inquire how it occurs that, though in manufacturing at least nearly every individual business, so long as it is well managed, tends to become stronger the larger it has grown; and though *primâ facie* we might therefore expect to see large firms driving their smaller rivals completely out of many branches of industry, yet they do not in fact do so. IV, XII, 1. Problems to be solved.

"Business" is taken here broadly to include all provision for the wants of others which is made in the expectation of payment direct or indirect from those who are to be benefited. It is thus contrasted with the provision for his wants which each one makes for himself, and with those kindly services which are prompted by friendship and family affection.

The primitive handicraftsman managed his whole business for himself; but since his customers were with few exceptions his immediate neighbours, since he required very little capital, since the plan of production was arranged for him by custom, and since he had no labour to superintend outside of his own household, these tasks did not involve any very great mental strain. He was far from enjoying unbroken prosperity; war and scarcity were constantly pressing on him and his neighbours, hindering his work and stopping their demand for his wares. But he was inclined to take good and evil fortune, like sunshine and rain, as things beyond his control: his fingers worked on, but his brain was seldom weary. The primitive handicraftsman dealt directly with the consumer

Even in modern England we find now and then a village artisan who adheres to primitive methods, and makes things on his own account for sale to his neighbours; managing his own business and and so do as a rule the learned

IV, XII, 2.

professions now.

undertaking all its risks. But such cases are rare: the most striking instances of an adherence to old-fashioned methods of business are supplied by the learned professions; for a physician or a solicitor manages as a rule his own business and does all its work. This plan is not without its disadvantages: much valuable activity is wasted or turned to but slight account by some professional men of first-rate ability, who have not the special aptitude required for obtaining a business connection; they would be better paid, would lead happier lives, and would do more good service for the world if their work could be arranged for them by some sort of a middleman. But yet on the whole things are probably best as they are: there are sound reasons behind the popular instinct which distrusts the intrusion of the middleman in the supply of those services which require the highest and most delicate mental qualities, and which can have their full value only where there is complete personal confidence.

But there are exceptions even here.

English solicitors however act, if not as employers or undertakers, yet as agents for hiring that branch of the legal profession which ranks highest, and whose work involves the hardest mental strain. Again, many of the best instructors of youth sell their services, not directly to the consumer, but to the governing body of a college or school, or to a head master, who arranges for their purchase: the employer supplies to the teacher a market for his labour; and is supposed to give to the purchaser, who may not be a good judge himself, some sort of guarantee as to the quality of the teaching supplied.

Again, artists of every kind, however eminent, often find it to their advantage to employ someone else to arrange for them with customers; while those of less established repute are sometimes dependent for their living on capitalized traders, who are not themselves artists, but who understand how to sell artistic work to the best advantage.

In most businesses the services of a special class of undertakers intervene.

§ 2. But in the greater part of the business of the modern world the task of so directing production that a given effort may be most effective in supplying human wants has to be broken up and given into the hands of a specialized body of employers, or to use a more general term, of business men. They "adventure" or "undertake" its risks; they bring together the capital and the labour required for the work; they arrange or "engineer" its general plan, and superintend its minor details. Looking at business men from one point of view we may regard them as a highly skilled industrial grade, from another as middlemen intervening between the manual worker and the consumer.

There are some kinds of business men who undertake great risks, and exercise a large influence over the welfare both of the producers and of the consumers of the wares in which they deal, but who are not to any considerable extent direct employers of labour. The extreme type of these is the dealer on the stock exchange or the produce markets, whose daily purchases and sales are of vast dimensions, and who yet has neither factory nor warehouse, but at most an office with a few clerks in it. The good and the evil effects of the action of speculators such as these are however very complex; and we may give our attention at present to those forms of business in which administration counts for most and the subtler forms of speculation for least. Let us then take some illustrations of the more common types of business, and watch the relations in which the undertaking of risks stands to the rest of the work of the business man.

Illustration from house-building.

§ 3. The building trade will serve our purpose well, partly because it adheres in some respects to primitive methods of business. Late in the Middle Ages it was quite common for a private person to build a house for himself without the aid of a master builder; and the habit is not even now altogether extinct. A person who undertakes his own building must hire separately all his workmen, he must watch them and check their demands for payment; he must buy his materials from many quarters, and he must hire, or dispense with the use of, expensive machinery. He probably pays more than the current wages; but here others gain what he loses. There is however great waste in the time he spends in bargaining with the men and testing and directing their work by his imperfect knowledge; and again in the time that he spends in finding out what kinds and quantities he wants of different materials, and where to get them best, and so on. This waste is avoided by that division of labour which assigns to the professional builder the task of superintending details, and to the professional architect the task of drawing plans.

The chief risks of undertaking sometimes separated from detailed management in the building trades;

The division of labour is often carried still further when houses are built not at the expense of those who are to live in them, but as a building speculation. When this is done on a large scale, as for instance in opening out a new suburb, the stakes at issue are so large as to offer an attractive field to powerful capitalists with a very high order of general business ability, but perhaps with not much technical knowledge of the building trade. They rely on their own judgment for the decision as to what are likely to be the coming relations of demand and supply for different kinds of houses; but

IV, XII, 4. they entrust to others the management of details. They employ architects and surveyors to make plans in accordance with their general directions; and then enter into contracts with professional builders for carrying them out. But they themselves undertake the chief risks of the business, and control its general direction.

in the textile trades; § 4. It is well known that this division of responsibility prevailed in the woollen trade just before the beginning of the era of large factories: the more speculative work and the broader risks of buying and selling being taken over by the undertakers, who were not themselves employers of labour; while the detailed work of superintendence and the narrower risks of carrying out definite contracts were handed over to small masters.[1] This plan is still extensively followed in some branches of the textile trades, especially those in which the difficulty of forecasting the future is very great. Manchester warehousemen give themselves to studying the movements of fashion, the markets for raw materials, the general state of trade, of the money market and of politics, and all other causes that are likely to influence the prices of different kinds of goods during the coming season; and after employing, if necessary, skilled designers to carry out their ideas (just as the building speculator in the previous case employed architects), they give out to manufacturers in different parts of the world contracts for making the goods on which they have determined to risk their capital.

in house industries; In the clothing trades especially we see a revival of what has been called the "house industry," which prevailed long ago in the textile industries; that is, the system in which large undertakers give out work to be done in cottages and very small workshops to persons who work alone or with the aid of some members of their family, or who perhaps employ two or three hired assistants.[2] In remote villages in almost every county of England agents of large undertakers come round to give out to the cottagers partially prepared materials for goods of all sorts, but especially clothes such as shirts and collars and gloves; and take back with them the finished goods. It is however in the great capital cities of the world,

[1] Compare Appendix A, 13.

[2] German economists call this "factory like" (fabrikmässig) house industry, as distinguished from the "national" house industry, which uses the intervals of other work (especially the winter interruptions of agriculture) for subsidiary work in making textile and other goods. (See Schönberg on *Gewerbe* in his *Handbuch*.) Domestic workers of this last class were common all over Europe in the Middle Ages but are now becoming rare except in the mountains and in eastern Europe. They are not always well advised in their choice of work; and much of what they make could be made better with far less labour in factories, so that it cannot be sold profitably in the open market: but for the most part they make for their own or their neighbours' use, and thus save the profits of a series of middlemen. Compare *Survival of domestic industries* by Gonner in the *Economic Journal*, Vol. II.

and in other large towns, especially old towns, where there is a great deal of unskilled and unorganized labour, with a somewhat low physique and morale, that the system is most fully developed, especially in the clothing trades, which employ two hundred thousand people in London alone, and in the cheap furniture trades. There is a continual contest between the factory and the domestic system, now one gaining ground and now the other: for instance just at present the growing use of sewing machines worked by steam power is strengthening the position of the factories in the boot trade; while factories and workshops are getting an increased hold of the tailoring trade. On the other hand the hosiery trade is being tempted back to the dwelling-house by recent improvements in hand knitting machines; and it is possible that new methods of distributing power by gas and petroleum and electric engines may exercise a like influence on many other industries. IV, XII, 4.

Or there may be a movement towards intermediate plans, similar to those which are largely followed in the Sheffield trades. Many cutlery firms for instance put out grinding and other parts of their work, at piece-work prices, to working men who rent the steam power which they require, either from the firm from whom they take their contract or from someone else: these workmen sometimes employing others to help them, sometimes working alone. in Sheffield trades;

Again, the foreign merchant very often has no ships of his own, but gives his mind to studying the course of trade, and undertakes himself its chief risks; while he gets his carrying done for him by men who require more administrative ability, but need not have the same power of forecasting the subtler movements of trade; though it is true that as puchasers of ships they have great and difficult trade risks of their own. Again, the broader risks of publishing a book are borne by the publisher, perhaps in company with the author; while the printer is the employer of labour and supplies the expensive types and machinery required for the business. And a somewhat similar plan is adopted in many branches of the metal trades, and of those which supply furniture, clothing, etc. in the shipping trade; and in the production of books, etc.

Thus there are many ways in which those who undertake the chief risks of buying and selling may avoid the trouble of housing and superintending those who work for them. They all have their advantages; and when the workers are men of strong character, as at Sheffield, the results are on the whole not unsatisfactory. But unfortunately it is often the weakest class of workers, those with the least resource and the least self-control who drift into work of this kind. The elasticity of the system which recommends it to the This plan has advantages; but is liable to abuse.

IV, XII, 5. undertaker, is really the means of enabling him to exercise, if he chooses, an undesirable pressure on those who do his work.

For while the success of a factory depends in a great measure on its having a set of operatives who adhere steadily to it, the capitalist who gives out the work to be done at home has an interest in retaining a great many persons on his books; he is tempted to give each of them a little employment occasionally and play them off one against another; and this he can easily do because they do not know one another, and cannot arrange concerted action.

Several distinct functions are combined in one hand by the ideal manufacturer:

§ 5. When the profits of business are under discussion they are generally connected in people's minds with the employer of labour: "the employer" is often taken as a term practically coextensive with the receiver of business profits. But the instances which we have just considered are sufficient to illustrate the truth that the superintendence of labour is but one side, and often not the most important side of business work; and that the employer who undertakes the whole risks of his business really performs two entirely distinct services on behalf of the community, and requires a twofold ability.

the faculties required in him.

To return to a class of considerations already noticed (IV. XI. 4 and 5), the manufacturer who makes goods not to meet special orders but for the general market, must, in his first rôle as merchant and organizer of production, have a thorough knowledge of *things* in his own trade. He must have the power of forecasting the broad movements of production and consumption, of seeing where there is an opportunity for supplying a new commodity that will meet a real want or improving the plan of producing an old commodity. He must be able to judge cautiously and undertake risks boldly; and he must of course understand the materials and machinery used in his trade.

But secondly in this rôle of employer he must be a natural leader of *men*. He must have a power of first choosing his assistants rightly and then trusting them fully; of interesting them in the business and of getting them to trust him, so as to bring out whatever enterprise and power of origination there is in them; while he himself exercises a general control over everything, and preserves order and unity in the main plan of the business.

The abilities required to make an ideal employer are so great and so numerous that very few persons can exhibit them all in a very high degree. Their relative importance however varies with the nature of the industry and the size of the business; and while one employer excels in one set of qualities, another excels in another; scarcely

any two owe their success to exactly the same combination of advantages. Some men make their way by the use of none but noble qualities, while others their prosperity to qualities in which there is very little that is really admirable except sagacity and strength of purpose.

The supply of business ability may be discussed in connection with the forms of business management.

Such then being the general nature of the work of business management, we have next to inquire what opportunities different classes of people have of developing business ability; and, when they have obtained that, what opportunities they have of getting command over the capital required to give it scope. We may thus come a little closer to the problem stated at the beginning of the chapter, and examine the course of development of a business firm during several consecutive generations. And this inquiry may conveniently be combined with some examination of the different forms of business management. Hitherto we have considered almost exclusively that form in which the whole responsibility and control rests in the hands of a single individual. But this form is yielding ground to others in which the supreme authority is distributed among several partners or even a great number of shareholders. Private firms and joint-stock companies, co-operative societies and public corporations are taking a constantly increasing share in the management of business; and one chief reason of this is that they offer an attractive field to people who have good business abilities, but have not inherited any great business opportunities.

The son of a business man has a good start.

§ 6. It is obvious that the son of a man already established in business starts with very great advantages over others. He has from his youth up special facilities for obtaining the knowledge and developing the faculties that are required in the management of his father's business: he learns quietly and almost unconsciously about men and manners in his father's trade and in those from which that trade buys and to which it sells; he gets to know the relative importance and the real significance of the various problems and anxieties which occupy his father's mind: and he acquires a technical knowledge of the processes and the machinery of the trade.[1] Some of what he learns will be applicable only to his father's trade; but the greater part will be serviceable in any trade that is in any way allied with that; while those general faculties of judgment and resource, of enterprise and caution, of firmness and courtesy, which are trained by association with those who control the larger issues of

[1] We have already noticed how almost the only perfect apprenticeships of modern times are those of the sons of manufacturers, who practise almost every important operation that is carried on in the works sufficiently to be able in after years to enter into the difficulties of all their employees and form a fair judgment on their work.

IV, XII, 6. any one trade, will go a long way towards fitting him for managing almost any other trade. Further, the sons of successful business men start with more material capital than almost anyone else except those who by nurture and education are likely to be disinclined for business and unfitted for it: and if they continue their fathers' work, they have also the vantage ground of established trade connections.

But business men do not form a caste, because their abilities and tastes are not always inherited;

It would therefore at first sight seem likely that business men should constitute a sort of caste; dividing out among their sons the chief posts of command, and founding hereditary dynasties, which should rule certain branches of trade for many generations together. But the actual state of things is very different. For when a man has got together a great business, his descendants often fail, in spite of their great advantages, to develop the high abilities and the special turn of mind and temperament required for carrying it on with equal success. He himself was probably brought up by parents of strong earnest character; and was educated by their personal influence and by struggle with difficulties in early life. But his children, at all events if they were born after he became rich, and in any case his grandchildren, are perhaps left a good deal to the care of domestic servants who are not of the same strong fibre as the parents by whose influence he was educated. And while his highest ambition was probably success in business, they are likely to be at least equally anxious for social or academic distinction.[1]

For a time indeed all may go well. His sons find a firmly established trade connection, and what is perhaps even more important, a well-chosen staff of subordinates with a generous interest in the business. By mere assiduity and caution, availing themselves of the traditions of the firm, they may hold together for a long time. But when a full generation has passed, when the old traditions are no longer a safe guide, and when the bonds that held together the old staff have been dissolved, then the business almost invariably falls to pieces unless it is practically handed over to the management of new men who have meanwhile risen to partnership in the firm.

But in most cases his descendants arrive at this result by a

[1] Until lately there has ever been in England a kind of antagonism between academic studies and business. This is now being diminished by the broadening of the spirit of our great universities, and by the growth of colleges in our chief business centres. The sons of business men when sent to the universities do not learn to despise their fathers' trades as often as they used to do even a generation ago. Many of them indeed are drawn away from business by the desire to extend the boundaries of knowledge. But the higher forms of mental activity, those which are constructive and not merely critical, tend to promote a just appreciation of the nobility of business work rightly done.

shorter route. They prefer an abundant income coming to them without effort on their part, to one which though twice as large could be earned only by incessant toil and anxiety; and they sell the business to private persons or a joint-stock company; or they become sleeping partners in it; that is sharing in its risks and in its profits, but not taking part in its management: in either case the active control over their capital falls chiefly into the hands of new men.

and after a time new blood must be brought in by some method.

§ 7. The oldest and simplest plan for renovating the energies of a business is that of taking into partnership some of its ablest employees. The autocratic owner and manager of a large manufacturing or trading concern finds that, as years go on, he has to delegate more and more responsibility to his chief subordinates; partly because the work to be done is growing heavier, and partly because his own strength is becoming less than it was. He still exercises a supreme control, but much must depend on their energy and probity: so, if his sons are not old enough, or for any other reason are not ready to take part of the burden off his shoulders, he decides to take one of his trusted assistants into partnership: he thus lightens his own labours, at the same time that he secures that the task of his life will be carried on by those whose habits he has moulded, and for whom he has perhaps acquired something like a fatherly affection.[1]

The method of private partnership.

But there are now, and there always have been, private partnerships on more equal terms, two or more people of about equal wealth and ability combining their resources for a large and difficult undertaking. In such cases there is often a distinct partition of the work of management: in manufactures for instance one partner will sometimes give himself almost exclusively to the work of buying raw material and selling the finished product, while the other is responsible for the management of the factory: and in a trading establishment one partner will control the wholesale and the other the retail department. In these and other ways private partnership is capable of adapting itself to a great variety of problems: it is very strong and very elastic; it has played a great part in the past, and it is full of vitality now.

[1] Much of the happiest romance of life, much that is most pleasant to dwell upon in the social history of England from the Middle Ages up to our own day is connected with the story of private partnerships of this class. Many a youth has been stimulated to a brave career by the influence of ballads and tales which narrate the difficulties and the ultimate triumph of the faithful apprentice, who has at length been taken into partnership, perhaps on marrying his employer's daughter. There are no influences on national character more far-reaching than those which thus give shape to the aims of aspiring youth.

IV, XII, 8, 9.

The method of joint-stock companies

§ 8. But from the end of the Middle Ages to the present time there has been in some classes of trades a movement towards the substitution of public joint-stock companies, the shares of which can be sold to anybody in the open market, for private companies, the shares in which are not transferable without the leave of all concerned. The effect of this change has been to induce people, many of whom have no special knowledge of trade, to give their capital into the hands of others employed by them: and there has thus arisen a new distribution of the various parts of the work of business management.

The shareholders undertake the risks; the Directors control the Managers; who superintend the details.

The ultimate undertakers of the risks incurred by a joint-stock company are the shareholders; but as a rule they do not take much active part in engineering the business and controlling its general policy; and they take no part in superintending its details. After the business has once got out of the hands of its original promoters, the control of it is left chiefly in the hands of Directors; who, if the company is a very large one, probably own but a very small proportion of its shares, while the greater part of them have not much technical knowledge of the work to be done. They are not generally expected to give their whole time to it; but they are supposed to bring wide general knowledge and sound judgment to bear on the broader problems of its policy; and at the same time to make sure that the "Managers" of the company are doing their work thoroughly.[1] To the Managers and their assistants is left a great part of the work of engineering the business, and the whole of the work of superintending it: but they are not required to bring any capital into it; and they are supposed to be promoted from the lower ranks to the higher according to their zeal and ability. Since the joint-stock companies in the United Kingdom do a very great part of the business of all kinds that is done in the country, they offer very large opportunities to men with natural talents for business management, who have not inherited any material capital, or any business connection.

Those who undertake the risks cannot

§ 9. Joint-stock companies have great elasticity and can expand themselves without limit when the work to which they have set themselves offers a wide scope; and they are gaining ground in

[1] **Bagehot** delighted to argue (see for instance *English Constitution*, ch. VII.) that a Cabinet Minister often derives some advantage from his want of technical knowledge of the business of his Department. For he can get information on matters of detail from the Permanent Secretary and other officials who are under his authority; and, while he is not likely to set his judgment against theirs on matters where their knowledge gives them the advantage, his unprejudiced common sense may well overrule the traditions of officialism in broad questions of public policy: and in like manner the interests of a company may possibly sometimes be most advanced by those Directors who have the least technical knowledge of the details of its business.

IV, XII, 9.

nearly all directions. But they have one great source of weakness in the absence of any adequate knowledge of the business on the part of the shareholders who undertake its chief risks. It is true that the head of a large private firm undertakes the chief risks of the business, while he entrusts many of its details to others; but his position is secured by his power of forming a direct judgment as to whether his subordinates serve his interests faithfully and discreetly. If those to whom he has entrusted the buying or selling of goods for him take commissions from those with whom they deal, he is in a position to discover and punish the fraud. If they show favouritism and promote incompetent relations or friends of their own, or if they themselves become idle and shirk their work, or even if they do not fulfil the promise of exceptional ability which induced him to give them their first lift, he can discover what is going wrong and set it right.

always judge whether the business is well managed.

But in all these matters the great body of the shareholders of a joint-stock company are, save in a few exceptional instances, almost powerless; though a few of the larger shareholders often exert themselves to find out what is going on; and are thus able to exercise an effective and wise control over the general management of the business. It is a strong proof of the marvellous growth in recent times of a spirit of honesty and uprightness in commercial matters, that the leading officers of great public companies yield as little as they do to the vast temptations to fraud which lie in their way. If they showed an eagerness to avail themselves of opportunities for wrong-doing at all approaching that of which we read in the commercial history of earlier civilization, their wrong uses of the trusts imposed in them would have been on so great a scale as to prevent the development of this democratic form of business. There is every reason to hope that the progress of trade morality will continue, aided in the future as it has been in the past, by a diminution of trade secrecy and by increased publicity in every form; and thus collective and democratic forms of business management may be able to extend themselves safely in many directions in which they have hitherto failed, and may far exceed the great services they already render in opening a large career to those who have no advantages of birth.

The system is rendered workable only by the modern growth of business morality.

The same may be said of the undertakings of Governments imperial and local: they also may have a great future before them, but up to the present time the tax-payer who undertakes the ultimate risks has not generally succeeded in exercising an efficient control over the businesses, and in securing officers who will do their work

Government undertakings.

IV, XII, 10. with as much energy and enterprise as is shown in private establishments.

The social perils of bureaucratic methods.

The problems of large joint-stock company administration, as well as of Governmental business, involve however many complex issues into which we cannot enter here. They are urgent, because very large businesses have recently increased fast, though perhaps not quite so fast as is commonly supposed. The change has been brought about chiefly by the development of processes and methods in manufacture and mining, in transport and banking, which are beyond the reach of any but very large capitals; and by the increase in the scope and functions of markets, and in the technical facilities for handling large masses of goods. The democratic element in Governmental enterprise was at first almost wholly vivifying: but experience shows creative ideas and experiments in business technique, and in business organization, to be very rare in Governmental undertakings, and not very common in private enterprises which have drifted towards bureaucratic methods as the result of their great age and large size. A new danger is thus threatened by the narrowing of the field of industry which is open to the vigorous initiative of smaller businesses.

Trusts and cartels.

Production on the largest scale of all is to be seen chiefly in the United States, where giant businesses, with some touch of monopoly, are commonly called "trusts." Some of these trusts have grown from a single root. But most of them have been developed by the amalgamation of many independent businesses; and a first step towards this combination was generally an association, or "cartel" to use a German term, of a rather loose kind.

Co-operative association in its ideal form

§ **10.** The system of co-operation aims at avoiding the evils of these two methods of business management. In that ideal form of co-operative society, for which many still fondly hope, but which as yet has been scantily realized in practice, a part or the whole of those shareholders who undertake the risks of the business are themselves employed by it. The employees, whether they contribute towards the material capital of the business or not, have a share in its profits, and some power of voting at the general meetings at which the broad lines of its policy are laid down, and the officers appointed who are to carry that policy into effect. They are thus the employers and masters of their own managers and foremen; they have fairly good means of judging whether the higher work of engineering the business is conducted honestly and efficiently, and they have the best possible opportunities for detecting any laxity or incompetence in its detailed administration. And lastly they render

might avoid the chief dangers of joint-stock companies.

unnecessary some of the minor work of superintendence that is required in other establishments; for their own pecuniary interests and the pride they take in the success of their own business make each of them averse to any shirking of work either by himself or by his fellow-workmen. IV, XII, 10.

It has difficulties in the task of business management,

But unfortunately the system has very great difficulties of its own. For human nature being what it is, the employees themselves are not always the best possible masters of their own foremen and managers; jealousies and frettings at reproof are apt to act like sand, that has got mixed with the oil in the bearings of a great and complex machinery. The hardest work of business management is generally that which makes the least outward show; those who work with their hands are apt to underrate the intensity of the strain involved in the highest work of engineering the business, and to grudge its being paid for at anything like as high a rate as it could earn elsewhere. And in fact the managers of a co-operative society seldom have the alertness, the inventiveness and the ready versatility of the ablest of those men who have been selected by the struggle for survival, and who have been trained by the free and unfettered responsibility of private business. Partly for these reasons the co-operative system has seldom been carried out in its entirety; and its partial application has not yet attained a conspicuous success except in retailing commodities consumed by working men. But within the last few years more hopeful signs have appeared of the success of *bonâ fide* productive associations, or "co-partnerships."

but it may outgrow some of these.

Those working men indeed whose tempers are strongly individualistic, and whose minds are concentrated almost wholly on their own affairs, will perhaps always find their quickest and most congenial path to material success by commencing business as small independent "undertakers," or by working their way upwards in a private firm or a public company. But co-operation has a special charm for those in whose tempers the social element is stronger, and who desire not to separate themselves from their old comrades, but to work among them as their leaders. Its aspirations may in some respects be higher than its practice; but it undoubtedly does rest in a great measure on ethical motives. The true co-operator combines a keen business intellect with a spirit full of an earnest faith; and some co-operative societies have been served excellently by men of great genius both mentally and morally—men who for the sake of the co-operative faith that is in them, have worked with great ability and energy, and with perfect uprightness, being all the time con-

IV, XII, 10. tent with lower pay than they could have got as business managers on their own account or for a private firm. Men of this stamp are more common among officers of co-operative societies than in other occupations; and though they are not very common even there, yet it may be hoped that the diffusion of a better knowledge of the true principles of co-operation, and the increase of general education, are every day fitting a larger number of co-operators for the complex problems of business management.

Profit-Sharing.

Meanwhile many partial applications of the co-operative principle are being tried under various conditions, each of which presents some new aspect of business management. Thus under the scheme of Profit-Sharing, a private firm while retaining the unfettered management of its business, pays its employees the full market rate of wages, whether by Time or Piece-work, and agrees in addition to divide among them a certain share of any profits that may be made above a fixed minimum; it being hoped that the firm will find a material as well as a moral reward in the diminution of friction, in the increased willingness of its employees to go out of their way to do little things that may be of great benefit comparatively to the firm, and lastly in attracting to itself workers of more than average ability and industry.[1]

Partial Co-operation.

Another partially co-operative scheme is that of some Oldham cotton-mills: they are really joint-stock companies; but among their shareholders are many working men who have a special knowledge of the trade, though they often prefer not to be employed in the mills of which they are part owners. And another is that of the Productive establishments, owned by the main body of co-operative stores, through their agents, the co-operative Wholesale Societies. In the Scotch Wholesale, but not in the English, the workers, as such, have some shares in the management and in the profits of the works.

At a later stage we shall have to study all those various co-operative and semi-co-operative forms of business more in detail, and to inquire into the cause of their success or failure in different classes of business, wholesale and retail, agricultural, manufacturing and trading. But we must not pursue this inquiry further now.

Hopes for the future.

Enough has been said to show that the world is only just beginning to be ready for the higher work of the co-operative movement; and that its many different forms may therefore be reasonably expected to attain a larger success in the future than in the past; and to

[1] Compare Schloss, *Methods of Industrial Remuneration*; and Gilman, *A dividend to labour.*

offer excellent opportunities for working men to practise themselves in the work of business management, to grow into the trust and confidence of others, and gradually rise to posts in which their business abilities will find scope. IV, XII, 11.

§ 11. In speaking of the difficulty that a working man has in rising to a post in which he can turn his business ability to full account, the chief stress is commonly laid upon his want of capital: but this is not always his chief difficulty. For instance the co-operative distributive societies have accumulated a vast capital, on which they find it difficult to get a good rate of interest; and which they would be rejoiced to lend to any set of working men who could show that they had the capacity for dealing with difficult business problems. Co-operators who have firstly a high order of business ability and probity, and secondly the "personal capital" of a great reputation among their fellows for these qualities, will have no difficulty in getting command of enough material capital for a considerable undertaking: the real difficulty is to convince a sufficient number of those around them that they have these rare qualities. And the case is not very different when an individual endeavours to obtain from the ordinary sources the loan of the capital required to start him in business.

The rise of the working man is not hindered as much as at first sight appears, by his want of capital;

It is true that in almost every business there is a constant increase in the amount of capital required to make a fair start; but there is a much more rapid increase in the amount of capital which is owned by people who do not want to use it themselves, and are so eager to lend it out that they will accept a constantly lower and lower rate of interest for it. Much of this capital passes into the hands of bankers who promptly lend it to anyone of whose business ability and honesty they are convinced. To say nothing of the credit that can be got in many businesses from those who supply the requisite raw material or stock in trade, the opportunities for direct borrowing are now so great that a moderate increase in the amount of capital required for a start in business is no very serious obstacle in the way of a person who has once got over the initial difficulty of earning a reputation for being likely to use it well.

for the loan-fund is increasing in volume and in eagerness for employment.

But perhaps a greater though less conspicuous hindrance to the rise of the working man is the growing complexity of business. The head of a business has now to think of many things about which he never used to trouble himself in earlier days; and these are just the kind of difficulties for which the training of the workshop affords the least preparation. Against this must be set the rapid improvement of the education of the working man not only at school, but

He is hindered much by the growing complexity of business.

IV, XII, 11. what is more important, in after life by newspapers, and from the work of co-operative societies and trades-unions, and in other ways.

But he may overcome these difficulties.

About three-fourths of the whole population of England belong to the wage-earning classes; and at all events when they are well fed, properly housed and educated, they have their fair share of that nervous strength which is the raw material of business ability. Without going out of their way they are all consciously or unconsciously competitors for posts of business command. The ordinary workman if he shows ability generally becomes a foreman, from that he may rise to be a manager, and to be taken into partnership with his employer. Or having saved a little of his own he may start one of those small shops which can still hold their own in a working man's quarter, stock it chiefly on credit, and let his wife attend to it by day, while he gives his evenings to it. In these or in other ways he may increase his capital till he can start a small workshop, or factory. Once having made a good beginning he will find the banks eager to give him generous credit. He must have time; and since he is not likely to start in business till after middle age he must have a long as well as a strong life; but if he has this and has also "patience, genius and good fortune" he is pretty sure to command a goodly capital before he dies.[1] In a factory those who work with their hands have better opportunities of rising to posts of command than the book-keepers and many others to whom social tradition has assigned a higher place. But in trading concerns it is otherwise; what manual work is done in them has as a rule no educating character, while the experience of the office is better adapted for preparing a man to manage a commercial than a manufacturing business.

The rise may take two generations instead of one.

There is then on the whole a broad movement from below upwards. Perhaps not so many as formerly rise at once from the position of working men to that of employers: but there are more who get on sufficiently far to give their sons a good chance of attain-

[1] The Germans say that success in business requires "Geld, Geduld, Genie and Glück." The chances that a working man has of rising vary somewhat with the nature of the work, being greatest in those trades in which a careful attention to details counts for most, and a wide knowledge, whether of science or of the world movements of speculation, counts for least. Thus for instance "thrift and the knowledge of practical details" are the most important elements of success in the ordinary work of the pottery trade; and in consequence most of those who have done well in it "have risen from the bench like Josiah Wedgwood" (see G. Wedgwood's evidence before the Commission on Technical Education); and a similar statement might be made about many of the Sheffield trades. But some of the working classes develop a great faculty for taking speculative risks; and if the knowledge of facts by which successful speculation must be guided, comes within their reach, they will often push their way through competitors who have started above them. Some of the most successful wholesale dealers in perishable commodities such as fish and fruit have begun life as market porters.

ing to the highest posts. The complete rise is not so very often accomplished in one generation; it is more often spread over two; but the total volume of the movement upwards is probably greater than it has ever been. And perhaps it is better for society as a whole that the rise should be distributed over two generations. The workmen who at the beginning of the last century rose in such large numbers to become employers were seldom fit for posts of command: they were too often harsh and tyrannical; they lost their self-control, and were neither truly noble nor truly happy; while their children were often haughty, extravagant, and self-indulgent, squandering their wealth on low and vulgar amusements, having the worst faults of the older aristocracy without their virtues. The foreman or superintendent who has still to obey as well as to command, but who is rising and sees his children likely to rise further, is in some ways more to be envied than the small master. His success is less conspicuous, but his work is often higher and more important for the world, while his character is more gentle and refined and not less strong. His children are well-trained; and if they get wealth, they are likely to make a fairly good use of it.

But that is not an unmixed evil;

It must however be admitted that the rapid extension of vast businesses, and especially of joint-stock companies in many branches of industry, is tending to make the able and thrifty workman, with high ambitions for his sons, seek to put them to office work. There they are in danger of losing the physical vigour and the force of character which attaches to constructive work with the hands, and to become commonplace members of the lower middle classes. But, if they can keep their force unimpaired, they are likely to become leaders in the world, though not generally in their father's industry; and therefore without the benefit of specially appropriate traditions and aptitude.

if the danger of mere office work can be avoided.

§ **12.** When a man of great ability is once at the head of an independent business, whatever be the route by which he has got there, he will with moderate good fortune soon be able to show such evidence of his power of turning capital to good account as to enable him to borrow in one way or another almost any amount that he may need. Making good profits he adds to his own capital, and this extra capital of his own is a material security for further borrowings; while the fact that he has made it himself tends to make lenders less careful to insist on a full security for their loans. Of course fortune tells for much in business: a very able man may find things going against him; the fact that he is losing money may diminish his power of borrowing. If he is working partly on borrowed capital,

An able business man speedily increases the capital at his command.

IV, XII, 12. it may even make those who have lent it refuse to renew their loans, and may thus cause him to succumb to what would have been but a passing misfortune, if he had been using no capital but his own : [1] and in fighting his way upwards he may have a chequered life full of great anxieties, and even misfortunes. But he can show his ability in misfortune as well as in success : human nature is sanguine; and it is notorious that men are abundantly willing to lend to those who have passed through commercial disaster without loss to their business reputation. Thus, in spite of vicissitudes, the able business man generally finds that in the long run the capital at his command grows in proportion to his ability.

A man who has not great business ability loses his capital the more rapidly the larger his business is.

Meanwhile, as we have seen, he, who with small ability is in command of a large capital, speedily loses it : he may perhaps be one who could and would have managed a small business with credit and left it stronger than he had found it : but if he has not the genius for dealing with great problems, the larger it is the more speedily will he break it up. For as a rule a large business can be kept going only by transactions which, after allowing for ordinary risks, leave but a very small percentage of gain. A small profit on a large turn-over quickly made, will yield a rich income to able men : and in those businesses which are of such a nature as to give scope to very large capitals, competition generally cuts the rate of profits on the turn-over very fine. A village trader may make five per cent. less profits on his turn-over than his abler rival, and yet be able to hold his head above water. But in those large manufacturing and trading businesses in which there is a quick return and a straight-forward routine, the whole profits on the turn-over are often so very small that a person who falls behind his rivals by even a small percentage loses a large sum at every turn-over; while in those large businesses which are difficult and do not rely on routine, and which afford high profits on the turn-over to really able management, there are no profits at all to be got by anyone who attempts the task with only ordinary ability.

These two forces tend to adjust the capital to the

These two sets of forces, the one increasing the capital at the command of able men, and the other destroying the capital that is in the hands of weaker men, bring about the result that there is a far more close correspondence between the ability of business men and

[1] The danger of not being able to renew his borrowings just at the time when he wants them most, puts him at a disadvantage relatively to those who use only their own capital, much greater than is represented by the mere interest on his borrowings : and, when we come to that part of the doctrine of distribution which deals with earnings of management, we shall find that, for this among other reasons, profits are something more than interest in addition to net earnings of management, *i.e.* those earnings which are properly to be ascribed to the abilities of business men.

the size of the businesses which they own than at first sight would appear probable. And when to this fact we add all the many routes, which we have already discussed, by which a man of great natural business ability can work his way up high in some private firm or public company, we may conclude that wherever there is work on a large scale to be done in such a country as England, the ability and the capital required for it are pretty sure to be speedily forthcoming.

ability required to use it well.

Further, just as industrial skill and ability are getting every day to depend more and more on the broad faculties of judgment, promptness, resource, carefulness and steadfastness of purpose—faculties which are not specialized to any one trade, but which are more or less useful in all—so it is with regard to business ability. In fact business ability consists more of these non-specialized faculties than do industrial skill and ability in the lower grades: and the higher the grade of business ability the more various are its applications.

Business ability in command of capital has a fairly defined supply price in such a country as England.

Since then business ability in command of capital moves with great ease horizontally from a trade which is over-crowded to one which offers good openings for it: and since it moves with great ease vertically, the abler men rising to the higher posts in their own trade, we see, even at this early stage of our inquiry, some good reasons for believing that in modern England the supply of business ability in command of capital accommodates itself, as a general rule, to the demand for it; and thus has a fairly defined supply price.

Net and *gross earnings of management.*

Finally, we may regard this supply price of business ability in command of capital as composed of three elements. The first is the supply price of capital; the second is the supply price of business ability and energy; and the third is the supply price of that organization by which the appropriate business ability and the requisite capital are brought together. We have called the price of the first of these three elements *interest*; we may call the price of the second taken by itself *net earnings of management*, and that of the second and third, taken together, *gross earnings of management*.

CHAPTER XIII

CONCLUSION. CORRELATION OF THE TENDENCIES TO INCREASING AND TO DIMINISHING RETURN

IV, XIII, 1.

The relation in which the later chapters of this Book stand to the earlier.

§ 1. At the beginning of the Book we saw how the extra return of raw produce which nature affords to an increased application of capital and labour, other things being equal, tends in the long run to diminish. In the remainder of the Book and especially in the last four chapters we have looked at the other side of the shield, and seen how man's power of productive work increases with the volume of the work that he does. Considering first the causes that govern the supply of labour, we saw how every increase in the physical, mental and moral vigour of a people makes them more likely, other things being equal, to rear to adult age a large number of vigorous children. Turning next to the growth of wealth, we observed how every increase of wealth tends in many ways to make a greater increase more easy than before. And lastly we saw how every increase of wealth and every increase in the numbers and intelligence of the people increased the facilities for a highly developed industrial organization, which in its turn adds much to the collective efficiency of capital and labour.

A summary of the later chapters of this Book.

Looking more closely at the economies arising from an increase in the scale of production of any kind of goods, we found that they fell into two classes—those dependent on the general development of the industry, and those dependent on the resources of the individual houses of business engaged in it and the efficiency of their management; that is, into *external* and *internal* economies.

Summary.

We saw how these latter economies are liable to constant fluctuations so far as any particular house is concerned. An able man, assisted perhaps by some strokes of good fortune, gets a firm footing in the trade, he works hard and lives sparely, his own capital grows fast, and the credit that enables him to borrow more capital grows still faster; he collects around him subordinates of more than ordinary zeal and ability; as his business increases they rise with him, they trust him and he trusts them, each of them devotes himself with energy to just that work for which he is specially fitted, so that no high ability is wasted on easy work, and no difficult

work is entrusted to unskilful hands. Corresponding to this steadily increasing economy of skill, the growth of his business brings with it similar economies of specialized machines and plant of all kinds; every improved process is quickly adopted and made the basis of further improvements; success brings credit and credit brings success; credit and success help to retain old customers and to bring new ones; the increase of his trade gives him great advantages in buying; his goods advertise one another, and thus diminish his difficulty in finding a vent for them. The increase in the scale of his business increases rapidly the advantages which he has over his competitors, and lowers the price at which he can afford to sell. This process may go on as long as his energy and enterprise, his inventive and organizing power retain their full strength and freshness, and so long as the risks which are inseparable from business do not cause him exceptional losses; and if it could endure for a hundred years, he and one or two others like him would divide between them the whole of that branch of industry in which he is engaged. The large scale of their production would put great economies within their reach; and provided they competed to their utmost with one another, the public would derive the chief benefit of these economies, and the price of the commodity would fall very low.

But here we may read a lesson from the young trees of the forest as they struggle upwards through the benumbing shade of their older rivals. Many succumb on the way, and a few only survive; those few become stronger with every year, they get a larger share of light and air with every increase of their height, and at last in their turn they tower above their neighbours, and seem as though they would grow on for ever, and for ever become stronger as they grow. But they do not. One tree will last longer in full vigour and attain a greater size than another; but sooner or later age tells on them all. Though the taller ones have a better access to light and air than their rivals, they gradually lose vitality; and one after another they give place to others, which, though of less material strength, have on their side the vigour of youth.

And as with the growth of trees, so was it with the growth of businesses as a general rule before the great recent development of vast joint-stock companies, which often stagnate, but do not readily die. Now that rule is far from universal, but it still holds in many industries and trades. Nature still presses on the private business by limiting the length of the life of its original founders, and by limiting even more narrowly that part of their lives in which their

IV, XIII, 2. Summary.

faculties retain full vigour. And so, after a while, the guidance of the business falls into the hands of people with less energy and less creative genius, if not with less active interest in its prosperity. If it is turned into a joint-stock company, it may retain the advantages of division of labour, of specialized skill and machinery: it may even increase them by a further increase of its capital; and under favourable conditions it may secure a permanent and prominent place in the work of production. But it is likely to have lost so much of its elasticity and progressive force, that the advantages are no longer exclusively on its side in its competition with younger and smaller rivals.

When therefore we are considering the broad results which the growth of wealth and population exert on the economies of production, the general character of our conclusions is not very much affected by the facts that many of these economies depend directly on the size of the individual establishments engaged in the production, and that in almost every trade there is a constant rise and fall of large businesses, at any one moment some firms being in the ascending phase and others in the descending. For in times of average prosperity decay in one direction is sure to be more than balanced by growth in another.

Meanwhile an increase in the aggregate scale of production of course increases those economies, which do not directly depend on the size of individual houses of business. The most important of these result from the growth of correlated branches of industry which mutually assist one another, perhaps being concentrated in the same localities, but anyhow availing themselves of the modern facilities for communication offered by steam transport, by the telegraph and by the printing-press. The economies arising from such sources as this, which are accessible to any branch of production, do not depend exclusively upon its own growth: but yet they are sure to grow rapidly and steadily with that growth; and they are sure to dwindle in some, though not in all respects, if it decays.

Forecast of our study of the cost of production in a *representative firm.*

§ 2. These results will be of great importance when we come to discuss the causes which govern the supply price of a commodity. We shall have to analyse carefully the normal cost of producing a commodity, relatively to a given aggregate volume of production; and for this purpose we shall have to study *the expenses of a representative producer* for that aggregate volume. On the one hand we shall not want to select some new producer just struggling into business, who works under many disadvantages, and has to be content for a time with little or no profits, but who is satisfied with

the fact that he establishing a connection and taking the first steps towards building up a successful business; nor on the other hand shall we want to take a firm which by exceptionally long-sustained ability and good fortune has got together a vast business, and huge well-ordered workshops that give it a superiority over almost all its rivals. But our representative firm must be one which has had a fairly long life, and fair success, which is managed with normal ability, and which has normal access to the economies, external and internal, which belong to that aggregate volume of production; account being taken of the class of goods produced, the conditions of marketing them and the economic environment generally. IV, XIII, 2.

Thus a representative firm is in a sense an average firm. But there are many ways in which the term "average" might be interpreted in connection with a business. And a Representative firm is that particular sort of average firm, at which we need to look in order to see how far the economies, *internal and external*, of production on a large scale have extended generally in the industry and country in question. We cannot see this by looking at one or two firms taken at random: but we can see it fairly well by selecting, after a broad survey, a firm, whether in private or joint-stock management (or better still, more than one), that represents, to the best of our judgment, this particular average.

The general argument of the present Book shows that an increase in the aggregate volume of production of anything will generally increase the size, and therefore the internal economies possessed by such a representative firm; that it will always increase the external economies to which the firm has access; and thus will enable it to manufacture at a less proportionate cost of labour and sacrifice than before.

Laws of increasing return,

In other words, we say broadly that while the part which nature plays in production shows a tendency to diminishing return, the part which man plays shows a tendency to increasing return. The *law of increasing return* may be worded thus:—An increase of labour and capital leads generally to improved organization, which increases the efficiency of the work of labour and capital.

Therefore in those industries which are not engaged in raising raw produce an increase of labour and capital generally gives a return increased more than in proportion; and further this improved organization tends to diminish or even override any increased resistance which nature may offer to raising increased amounts of raw produce. If the actions of the laws of increasing and diminishing

IV, XIII, 2.

and of constant return.

return are balanced we have the *law of constant return*, and an increased produce is obtained by labour and sacrifice increased just in proportion.

The straining of the tendencies towards increasing and diminishing return against one another.

For the two tendencies towards increasing and diminishing return press constantly against one another. In the production of wheat and wool, for instance, the latter tendency has almost exclusive sway in an old country, which cannot import freely. In turning the wheat into flour, or the wool into blankets, an increase in the aggregate volume of production brings some new economies, but not many; for the trades of grinding wheat and making blankets are already on so great a scale that any new economies that they may attain are more likely to be the result of new inventions than of improved organization. In a country however in which the blanket trade is but slightly developed, these latter may be important; and then it may happen that an increase in the aggregate production of blankets diminishes the proportionate difficulty of manufacturing by just as much as it increases that of raising the raw material. In that case the actions of the laws of diminishing and of increasing return would just neutralize one another; and blankets would conform to the law of constant return. But in most of the more delicate branches of manufacturing, where the cost of raw material counts for little, and in most of the modern transport industries the law of increasing return acts almost unopposed.[1]

Increasing Return is a relation of quantities.

Increasing Return is a relation between a quantity of effort and sacrifice on the one hand, and a quantity of product on the other. The quantities cannot be taken out exactly, because changing methods of production call for machinery, and for unskilled and skilled labour of new kinds and in new proportions. But, taking a broad view, we may perhaps say vaguely that the output of a certain amount of labour and capital in an industry has increased by perhaps a quarter or a third in the last twenty years. To measure outlay and output in terms of money is a tempting, but a dangerous resource: for a comparison of money outlay with money returns is apt to slide into an estimate of the rate of profit on capital.[2]

[1] In an article on "The variation of productive forces" in the *Quarterly Journal of Economics*, 1902, Professor Bullock suggests that the term "Economy of Organization" should be substituted for Increasing Return. He shows clearly that the forces which make for Increasing Return are not of the same order as those that make for Diminishing Return: and there are undoubtedly cases in which it is better to emphasize this difference by describing causes rather than results, and contrasting Economy of Organization with the Inelasticity of Nature's response to intensive cultivation.

[2] There is no general rule that industries which yield increasing returns show also rising profits. No doubt a vigorous firm, which increases its scale of operations and obtains important (internal) economies which are peculiar to it, will show an increasing return and a rising rate of profit; because its increasing output will not materially affect the price of its produce. But profits tend to be low, as we shall see below

§ **3.** We may now sum up provisionally the relations of industrial expansion to social wellbeing. A rapid growth of population has often been accompanied by unhealthy and enervating habits of life in overcrowded towns. And sometimes it has started badly, outrunning the material resources of the people, causing them with imperfect appliances to make excessive demands on the soil; and so to call forth the stern action of the law of diminishing return as regards raw produce, without having the power of minimizing its effects. Having thus begun with poverty, an increase in numbers may go on to its too frequent consequences in that weakness of character which unfits a people for developing a highly organized industry. IV, XIII, 3.

A rapid growth of population is an evil under some conditions,

These are serious perils: but yet it remains true that the collective efficiency of a people with a given average of individual strength and energy may increase more than in proportion to their numbers. If they can for a time escape from the pressure of the law of diminishing return by importing food and other raw produce on easy terms; if their wealth is not consumed in great wars, and increases at least as fast as their numbers; and if they avoid habits of life that would enfeeble them; then every increase in their numbers is likely *for the time* to be accompanied by a more than proportionate increase in their power of obtaining material goods. For it enables them to secure the many various economies of specialized skill and specialized machinery, of localized industries and production on a large scale: it enables them to have increased facilities of communication of all kinds; while the very closeness of their neighbourhood diminishes the expense of time and effort involved in every sort of traffic between them, and gives them new opportunities of getting social enjoyments and the comforts and luxuries of culture in every form. No doubt deduction must be made for the growing difficulty of finding solitude and quiet and even fresh air: but there is in most cases some balance of good.[1]

but not under others.

Taking account of the fact that an increasing density of population generally brings with it access to new social enjoyments we may give a rather broader scope to this statement and say :—An increase

(VI. VIII. 1, 2), in such industries as plain weaving, because their vast scale has enabled organization in production and marketing to be carried so far as to be almost dominated by routine.

[1] The Englishman Mill bursts into unwonted enthusiasm when speaking (*Political Economy*, Book IV. ch. VI. § 2) of the pleasures of wandering alone in beautiful scenery: and many American writers give fervid descriptions of the growing richness of human life as the backwoodsman finds neighbours settling around him, as the backwoods settlement develops into a village, the village into a town, and the town into a vast city. (See for instance Carey's *Principles of Social Science* and Henry George's *Progress and Poverty*.)

IV, XIII, 3. of population accompanied by an equal increase in the material sources of enjoyment and aids to production is likely to lead to a more than proportionate increase in the aggregate income of enjoyment of all kinds; provided firstly, an adequate supply of raw produce can be obtained without great difficulty, and secondly there is no such overcrowding as causes physical and moral vigour to be impaired by the want of fresh air and light and of healthy and joyous recreation for the young.

The effects of a growth of numbers must be carefully distinguished from those of the growth of wealth by which it is generally accompanied.

The accumulated wealth of civilized countries is at present growing faster than the population: and though it may be true that the wealth per head would increase somewhat faster if the population did not increase quite so fast; yet as a matter of fact an increase of population is likely to continue to be accompanied by a more than proportionate increase of the material aids to production: and in England *at the present time*, with easy access to abundant foreign supplies of raw material, an increase of population is accompanied by a more than proportionate increase of the means of satisfying human wants other than the need for light, fresh air, etc. Much of this increase is however attributable not to the increase of industrial efficiency but to the increase of wealth by which it is accompanied: and therefore it does not necessarily benefit those who have no share in that wealth. And further, England's foreign supplies of raw produce may at any time be checked by changes in the trade regulations of other countries, and may be almost cut off by a great war, while the naval and military expenditure which would be necessary to make the country fairly secure against this last risk, would appreciably diminish the benefits that she derives from the action of the law of increasing return.

BOOK V

GENERAL RELATIONS OF DEMAND, SUPPLY AND VALUE

CHAPTER I

INTRODUCTORY. ON MARKETS

V, I, 1.

Biological and mechanical notions of the balancing of opposed forces.

§ 1. A BUSINESS firm grows and attains great strength, and afterwards perhaps stagnates and decays; and at the turning point there is a balancing or equilibrium of the forces of life and decay: the latter part of Book IV has been chiefly occupied with such balancing of forces in the life and decay of a people, or of a method of industry or trading. And as we reach to the higher stages of our work, we shall need ever more and more to think of economic forces as resembling those which make a young man grow in strength, till he reaches his prime; after which he gradually becomes stiff and inactive, till at last he sinks to make room for other and more vigorous life. But to prepare the way for this advanced study we want first to look at a simpler balancing of forces which corresponds rather to the mechanical equilibrium of a stone hanging by an elastic string, or of a number of balls resting against one another in a basin.

Scope of this Book.

We have now to examine the general relations of demand and supply; especially those which are connected with that adjustment of price, by which they are maintained in "equilibrium." This term is in common use and may be used for the present without special explanation. But there are many difficulties connected with it, which can only be handled gradually: and indeed they will occupy our attention during a great part of this Book.

Illustrations will be taken now from one class of economic problems and now from another, but the main course of the reasoning will be kept free from assumptions which specially belong to any particular class.

Thus it is not descriptive, nor does it deal constructively with real problems. But it sets out the theoretical backbone of our

V, I, 2.

knowledge of the causes which govern value, and thus prepares the way for the construction which is to begin in the following Book. It aims not so much at the attainment of knowledge, as at the power to obtain and arrange knowledge with regard to two opposing sets of forces, those which impel man to economic efforts and sacrifices, and those which hold him back.

Markets described only provisionally here.

We must begin with a short and provisional account of markets: for that is needed to give precision to the ideas in this and the following Books. But the organization of markets is intimately connected both as cause and effect with money, credit, and foreign trade; a full study of it must therefore be deferred to a later volume, where it will be taken in connection with commercial and industrial fluctuations, and with combinations of producers and of merchants, of employers and employed.

Definition of a *market*.

§ 2. When demand and supply are spoken of in relation to one another, it is of course necessary that the markets to which they refer should be the same. As Cournot says, "Economists understand by the term *Market*, not any particular market place in which things are bought and sold, but the whole of any region in which buyers and sellers are in such free intercourse with one another that the prices of the same goods tend to equality easily and quickly."[1] Or again as Jevons says:—"Originally a market was a public place in a town where provisions and other objects were exposed for sale; but the word has been generalized, so as to mean any body of persons who are in intimate business relations and carry on extensive transactions in any commodity. A great city may contain as many markets as there are important branches of trade, and these markets may or may not be localized. The central point of a market is the public exchange, mart or auction rooms, where the traders agree to meet and transact business. In London the Stock Market, the Corn Market, the Coal Market, the Sugar Market, and many others are distinctly localized; in Manchester the Cotton Market, the Cotton Waste Market, and others. But this distinction of locality is not necessary. The traders may be spread over a whole town, or region of country, and yet make a market, if they are, by means of fairs, meetings, published price lists, the post-office or otherwise, in close communication with each other."[2]

Thus the more nearly perfect a market is, the stronger is the tendency for the same price to be paid for the same thing at the same

[1] *Recherches sur les Principes Mathématiques de la Théorie des Richesses*, ch. IV. See also above III. IV. 7.

[2] *Theory of Political Economy*, ch. IV.

time in all parts of the market: but of course if the market is large, allowance must be made for the expense of delivering the goods to different purchasers; each of whom must be supposed to pay in addition to the market price a special charge on account of delivery.[1]

Boundaries of a market.

§ 3. In applying economic reasonings in practice it is often difficult to ascertain how far the movements of supply and demand in any one place are influenced by those in another. It is clear that the general tendency of the telegraph, the printing-press and steam traffic is to extend the area over which such influences act and to increase their force. The whole Western World may, in a sense, be regarded as one market for many kinds of stock exchange securities, for the more valuable metals, and to a less extent for wool and cotton and even wheat; proper allowance being made for expenses of transport, in which may be included taxes levied by any customs houses through which the goods have to pass. For in all these cases the expenses of transport, including customs duties, are not sufficient to prevent buyers from all parts of the Western World from competing with one another for the same supplies.

Instances of very wide markets.

General conditions which affect the extent of the market for a thing.

There are many special causes which may widen or narrow the market of any particular commodity: but nearly all those things for which there is a very wide market are in universal demand, and capable of being easily and exactly described. Thus for instance cotton, wheat, and iron satisfy wants that are urgent and nearly universal. They can be easily described, so that they can be bought and sold by persons at a distance from one another and at a distance also from the commodities. If necessary, samples can be taken of them which are truly representative: and they can even be "graded," as is the actual practice with regard to grain in America, by an independent authority; so that the purchaser may be secure that what he buys will come up to a given standard, though he has never seen a sample of the goods which he is buying and perhaps would not be able himself to form an opinion on it if he did.[2]

Suitability for grading and sampling.

Commodities for which there a is a very wide market must also be such as will bear a long carriage: they must be somewhat durable, and their value must be considerable in proportion to their bulk.

Portability.

[1] Thus it is common to see the prices of bulky goods quoted as delivered "free on board" (f. o. b.) any vessel in a certain port, each purchaser having to make his own reckoning for bringing the goods home.

[2] Thus the managers of a public or private "elevator," receive grain from a farmer, divide it into different grades, and return to him certificates for as many bushels of each grade as he has delivered. His grain is then mixed with those of other farmers; his certificates are likely to change hands several times before they reach a purchaser who demands that the grain shall be actually delivered to him; and little or none of what that purchaser receives may have come from the farm of the original recipient of the certificate.

V, I, 4.

A thing which is so bulky that its price is necessarily raised very much when it is sold far away from the place in which it is produced, must as a rule have a narrow market. The market for common bricks for instance is practically confined to the near neighbourhood of the kilns in which they are made: they can scarcely ever bear a long carriage by land to a district which has any kilns of its own. But bricks of certain exceptional kinds have markets extending over a great part of England.

The conditions of highly organized markets

§ 4. Let us then consider more closely the markets for things which satisfy in an exceptional way these conditions of being in general demand, cognizable and portable. They are, as we have said, stock exchange securities and the more valuable metals.

illustrated by reference to stock exchanges.

Any one share or bond of a public company, or any bond of a government is of exactly the same value as any other of the same issue: it can make no difference to any purchaser which of the two he buys. Some securities, principally those of comparatively small mining, shipping, and other companies, require local knowledge, and are not very easily dealt in except on the stock exchanges of provincial towns in their immediate neighbourhood. But the whole of England is one market for the shares and bonds of a large English railway. In ordinary times a dealer will sell, say, Midland Railway shares, even if he has not them himself; because he knows they are always coming into the market, and he is sure to be able to buy them.

But the strongest case of all is that of securities which are called "international," because they are in request in every part of the globe. They are the bonds of the chief governments, and of very large public companies such as those of the Suez Canal and the New York Central Railway. For bonds of this class the telegraph keeps prices at almost exactly the same level in all the stock exchanges of the world. If the price of one of them rises in New York or in Paris, in London or in Berlin, the mere news of the rise tends to cause a rise in other markets; and if for any reason the rise is delayed, that particular class of bonds is likely soon to be offered for sale in the high priced market under telegraphic orders from the other markets, while dealers in the first market will be making telegraphic purchases in other markets. These sales on the one hand, and purchases on the other, strengthen the tendency which the price has to seek the same level everywhere; and unless some of the markets are in an abnormal condition, the tendency soon becomes irresistible.

On the stock exchange also a dealer can generally make sure of selling at nearly the same price as that at which he buys; and he is

often willing to buy first class stocks at a half, or a quarter, or an eighth, or in some cases even a sixteenth per cent. less than he offers in the same breath to sell them at. If there are two securities equally good, but one of them belongs to a large issue of bonds, and the other to a small issue by the same government, so that the first is constantly coming on the market, and the latter but seldom, then the dealers will on this account alone require a larger margin between their selling price and their buying price in the latter case than in the former.[1] This illustrates well the great law, that the larger the market for a commodity the smaller generally are the fluctuations in its price, and the lower is the percentage on the turnover which dealers charge for doing business in it.

The world market for the precious metals.

Stock exchanges then are the pattern on which markets have been, and are being formed for dealing in many kinds of produce which can be easily and exactly described, are portable and in general demand. The material commodities however which possess these qualities in the highest degree are gold and silver. For that very reason they have been chosen by common consent for use as money, to represent the value of other things: the world market for them is most highly organized, and will be found to offer many subtle illustrations of the actions of the laws which are we now discussing.

§ 5. At the opposite extremity to international stock exchange securities and the more valuable metals are, firstly, things which must be made to order to suit particular individuals, such as well-fitting clothes; and, secondly, perishable and bulky goods, such as fresh vegetables, which can seldom be profitably carried long distances. The first can scarcely be said to have a wholesale market at all; the conditions by which their price is determined are those of retail buying and selling, and the study of them may be postponed.[2]

Putting aside cases of retail dealing, we pass to a market which seems

There are indeed wholesale markets for the second class, but they are confined within narrow boundaries; we may find our typical instance in the sale of the commoner kinds of vegetables in a country

[1] In the case of shares of very small and little known companies, the difference between the price at which a dealer is willing to buy and that at which he will sell may amount to from five per cent. or more of the selling value. If he buys, he may have to carry this security a long time before he meets with any one who comes to take it from him, and meanwhile it may fall in value: while if he undertakes to deliver a security which he has not himself got and which does not come on the market every day, he may be unable to complete his contract without much trouble and expense.

[2] A man may not trouble himself much about small retail purchases: he may give half-a-crown for a packet of paper in one shop which he could have got for two shillings in another. But it is otherwise with wholesale prices. A manufacturer cannot sell a ream of paper for six shillings while his neighbour is selling it at five. For those whose business it is to deal in paper know almost exactly the lowest price at which it can be bought, and will not pay more than this. The manufacturer has to sell at about the market price, that is at about the price at which other manufacturers are selling at the same time.

V, I, 6.

to be narrowly confined,

town. The market-gardeners in the neighbourhood have probably to arrange for the sale of their vegetables to the townspeople with but little external interference on either side. There may be some check to extreme prices by the power on the one side of selling, and on the other of buying elsewhere; but under ordinary circumstances the check is inoperative, and it may happen that the dealers in such a case are able to combine, and thus fix an artificial monopoly price; that is, a price determined with little direct reference to cost of production, but chiefly by a consideration of what the market will bear.

though even this is subject to indirect influences from great distances.

On the other hand, it may happen that some of the market-gardeners are almost equally near a second country town, and send their vegetables now to one and now to the other; and some people who occasionally buy in the first town may have equally good access to the second. The least variation in price will lead them to prefer the better market; and thus make the bargainings in the two towns to some extent mutually dependent. It may happen that this second town is in close communication with London or some other central market, so that its prices are controlled by the prices in the central market; and in that case prices in our first town also must move to a considerable extent in harmony with them. As news passes from mouth to mouth till a rumour spreads far away from its forgotten sources, so even the most secluded market is liable to be influenced by changes of which those in the market have no direct cognizance, changes that have had their origin far away and have spread gradually from market to market.

Thus at the one extreme are world markets in which competition acts directly from all parts of the globe; and at the other those secluded markets in which all direct competition from afar is shut out, though indirect and transmitted competition may make itself felt even in these; and about midway between these extremes lie the great majority of the markets which the economist and the business man have to study.

Limitations of market with regard to time affect the nature of the causes of which we have to take account.

§ 6. Again, markets vary with regard to the period of time which is allowed to the forces of demand and supply to bring themselves into equilibrium with one another, as well as with regard to the area over which they extend. And this element of Time requires more careful attention just now than does that of Space. For the nature of the equilibrium itself, and that of the causes by which it is determined, depend on the length of the period over which the market is taken to extend. We shall find that if the period is short, the supply is limited to the stores which happen to be

at hand: if the period is longer, the supply will be influenced, more or less, by the cost of producing the commodity in question; and if the period is very long, this cost will in its turn be influenced, more or less, by the cost of producing the labour and the material things required for producing the commodity. These three classes of course merge into one another by imperceptible degrees. We will begin with the first class; and consider in the next chapter those temporary equilibria of demand and supply, in which "supply" means in effect merely the stock available at the time for sale in the market; so that it cannot be directly influenced by the cost of production. V, I, 6.

CHAPTER II

TEMPORARY EQUILIBRIUM OF DEMAND AND SUPPLY

V, II, 1.

A simple instance of equilibrium between desire and effort.

§ 1. The simplest case of balance or equilibrium between desire and effort is found when a person satisfies one of his wants by his own direct work. When a boy picks blackberries for his own eating, the action of picking is probably itself pleasurable for a while; and for some time longer the pleasure of eating is more than enough to repay the trouble of picking. But after he has eaten a good deal, the desire for more diminishes; while the task of picking begins to cause weariness, which may indeed be a feeling of monotony rather than of fatigue. Equilibrium is reached when at last his eagerness to play and his disinclination for the work of picking counterbalance the desire for eating. The satisfaction which he can get from picking fruit has arrived at its *maximum*: for up to that time every fresh picking has added more to his pleasure than it has taken away; and after that time any further picking would take away from his pleasure more than it would add.[1]

In a casual barter there is generally no true equilibrium.

In a casual bargain that one person makes with another, as for instance when two backwoodsmen barter a rifle for a canoe, there is seldom anything that can properly be called an equilibrium of supply and demand: there is probably a margin of satisfaction on either side; for probably the one would be willing to give something besides the rifle for the canoe, if he could not get the canoe otherwise; while the other would in case of necessity give something besides the canoe for the rifle.

The case of systematic barter may be deferred.

It is indeed possible that a true equilibrium may be arrived at under a system of barter; but barter, though earlier in history than buying and selling, is in some ways more intricate; and the simplest cases of a true equilibrium value are found in the markets of a more advanced state of civilization.

Market for unique or rare things.

We may put aside as of little practical importance a class of dealings which has been much discussed. They relate to pictures by old masters, rare coins and other things, which cannot be "graded" at all. The price at which each is sold, will depend much on whether any rich persons with a fancy for it happen to be present

[1] See IV. I. 2, and Note XII. in the Mathematical Appendix.

V, II, 2.

at its sale. If not, it will probably be bought by dealers who reckon on being able to sell it at a profit; and the variations in the price for which the same picture sells at successive auctions, great as they are, would be greater still if it were not for the steadying influence of professional purchasers.

Illustration from a local corn-market of a true though temporary equilibrium.

§ 2. Let us then turn to the ordinary dealings of modern life; and take an illustration from a corn-market in a country town, and let us assume for the sake of simplicity that all the corn in the market is of the same quality. The amount which each farmer or other seller offers for sale at any price is governed by his own need for money in hand, and by his calculation of the present and future conditions of the market with which he is connected. There are some prices which no seller would accept, some which no one would refuse. There are other intermediate prices which would be accepted for larger or smaller amounts by many or all of the sellers. Everyone will try to guess the state of the market and to govern his actions accordingly. Let us suppose that in fact there are not more than 600 quarters, the holders of which are willing to accept as low a price as 35*s.*; but that holders of another hundred would be tempted by 36*s.*; and holders of yet another three hundred by 37*s.* Let us suppose also that a price of 37*s.* would tempt buyers for only 600 quarters; while another hundred could be sold at 36*s.*, and yet another two hundred at 35*s.* These facts may be put out in a table thus:—

At the price.	Holders will be willing to sell.	Buyers will be willing to buy.
37*s.*	1000 quarters	600 quarters
36*s.*	700 ,,	700 ,,
35*s.*	600 ,,	900 ,,

Of course some of those who are really willing to take 36*s.* rather than leave the market without selling, will not show at once that they are ready to accept that price. And in like manner buyers will fence, and pretend to be less eager than they really are. So the price may be tossed hither and thither like a shuttlecock, as one side or the other gets the better in the "higgling and bargaining" of the market. But unless they are unequally matched; unless, for instance, one side is very simple or unfortunate in failing to gauge the strength of the other side, the price is likely to be never very far from 36*s.*; and it is nearly sure to be pretty close to 36*s.* at the end of the market. For if a holder thinks that the buyers will really be able to get at 36*s.* all that they care to take at that price, he will be unwilling to let slip past him any offer that is well above that price.

V, II, 3. Buyers on their part will make similar calculations; and if at any time the price should rise considerably above 36*s.* they will argue that the supply will be much greater than the demand at that price: therefore even those of them who would rather pay that price than go unserved, wait; and by waiting they help to bring the price down. On the other hand, when the price is much below 36*s.*, even those sellers who would rather take the price than leave the market with their corn unsold, will argue that at that price the demand will be in excess of the supply: so they will wait, and by waiting help to bring the price up.

The price of 36*s.* has thus some claim to be called the true equilibrium price: because if it were fixed on at the beginning, and adhered to throughout, it would exactly equate demand and supply (*i.e.* the amount which buyers were willing to purchase at that price would be just equal to that for which sellers were willing to take that price); and because every dealer who has a perfect knowledge of the circumstances of the market expects that price to be established. If he sees the price differing much from 36*s.* he expects that a change will come before long, and by anticipating it he helps it to come quickly.

It is not indeed necessary for our argument that any dealers should have a thorough knowledge of the circumstances of the market. Many of the buyers may perhaps underrate the willingness of the sellers to sell, with the effect that for some time the price rules at the highest level at which any buyers can be found; and thus 500 quarters may be sold before the price sinks below 37*s.* But afterwards the price must begin to fall and the result will still probably be that 200 more quarters will be sold, and the market will close on a price of about 36*s.* For when 700 quarters have been sold, no seller will be anxious to dispose of any more except at a higher price than 36*s.*, and no buyer will be anxious to purchase any more except at a lower price than 36*s.* In the same way if the sellers had underrated the willingness of the buyers to pay a high price, some of them might begin to sell at the lowest price they would take, rather than have their corn left on their hands, and in this case much corn might be sold at a price of 35*s.*; but the market would probably close on a price of 36*s.* and a total sale of 700 quarters.[1]

§ **3.** In this illustration there is a latent assumption which is in accordance with the actual conditions of most markets; but which

[1] A simple form of the influence which opinion exerts on the action of dealers, and therefore on market price, is indicated in this illustration: we shall be much occupied with more complex developments of it later on.

The latent assumption, that the dealers' willingness to spend money is nearly constant throughout

ought to be distinctly recognized in order to prevent its creeping into those cases in which it is not justifiable. We tacitly assumed that the sum which purchasers were willing to pay, and which sellers were willing to take, for the seven hundredth quarter would not be affected by the question whether the earlier bargains had been made at a high or a low rate. We allowed for the diminution in the buyers' need of corn [its marginal utility to them] as the amount bought increased. But we did not allow for any appreciable change in their unwillingness to part with money [its marginal utility]; we assumed that that would be practically the same whether the early payments had been at a high or a low rate.

is generally valid as to a corn-market;

This assumption is justifiable with regard to most of the market dealings with which we are practically concerned. When a person buys anything for his own consumption, he generally spends on it a small part of his total resources; while when he buys it for the purposes of trade, he looks to re-selling it, and therefore his potential resources are not diminished. In either case there is no appreciable change in his willingness to part with money. There may indeed be individuals of whom this is not true; but there are sure to be present some dealers with large stocks of money at their command; and their influence steadies the market.[1]

but in a labour market the exceptions are often important.

The exceptions are rare and unimportant in markets for commodities; but in markets for labour they are frequent and important. When a workman is in fear of hunger, his need of money [its marginal utility to him] is very great; and, if at starting, he gets the worst of the bargaining, and is employed at low wages, it remains great, and he may go on selling his labour at a low rate. That is all the more probable because, while the advantage in bargaining is likely

[1] For instance a buyer is sometimes straitened for want of ready money, and has to let offers pass by him in no way inferior to others which he has gladly accepted: his own funds being exhausted, he could not perhaps borrow except on terms that would take away all the profit that the bargains had at first sight offered. But if the bargain is really a good one, some one else, who is not so straitened, is nearly sure to get hold of it.

Again, it is possible that several of those who had been counted as ready to sell corn at a price of 36*s*. were willing to sell only because they were in urgent need of a certain amount of ready money; if they succeeded in selling some corn at a high price, there might be a perceptible diminution in the marginal utility of ready money to them; and therefore they might refuse to sell for 36*s*. a quarter all the corn which they would have sold if the price had been 36*s*. throughout. In this case the sellers in consequence of getting an advantage in bargaining at the beginning of the market might retain to the end a price higher than *the* equilibrium price. The price at which the market closed would be *an* equilibrium price; and though not properly described as *the* equilibrium price, it would be very unlikely to diverge widely from that price.

Conversely, if the market had opened much to the disadvantage of the sellers and they had sold some corn very cheap, so that they remained in great want of ready money, the final utility of money to them might have remained so high that they would have gone on selling considerably below 36*s*. until the buyers had been supplied with all that they cared to take. The market would then close without the true equilibrium price having ever been reached, but a very near approach would have been made to it.

V, II, 3.

to be pretty well distributed between the two sides of a market for commodities, it is more often on the side of the buyers than on that of the sellers in a market for labour. Another difference between a labour market and a market for commodities arises from the fact that each seller of labour has only one unit of labour to dispose of. These are two among many facts, in which we shall find, as we go on, the explanation of much of that instinctive objection which the working classes have felt to the habit of some economists, particularly those of the employer class, of treating labour simply as a commodity and regarding the labour market as like every other market; whereas in fact the differences between the two cases, though not fundamental from the point of view of theory, are yet clearly marked, and in practice often very important.

This difference has important results in theory and in practice.

The theory of buying and selling becomes therefore much more complex when we take account of the dependence of marginal utility on amount in the case of money as well as of the commodity itself. The practical importance of this consideration is not very great. But a contrast is drawn in Appendix F between barter and dealings in which one side of each exchange is in the form of general purchasing power. In barter a person's stock of either commodity exchanged needs to be adjusted closely to his individual wants. If his stock is too large he may have no good use for it. If his stock is too small he may have some difficulty in finding any one who can conveniently give him what he wants and is also in need of the particular things of which he himself has a superfluity. But any one who has a stock of general purchasing power, can obtain any thing he wants as soon as he meets with any one who has a superfluity of that thing : he needs not to hunt about till he comes across " the double coincidence " of a person who can spare what he wants, and also wants what he can spare. Consequently every one, and especially a professional dealer, can afford to keep command over a large stock of money; and can therefore make considerable purchases without depleting his stock of money or greatly altering its marginal value.

Reference to an Appendix on Barter.

CHAPTER III

EQUILIBRIUM OF NORMAL DEMAND AND SUPPLY

§ 1. We have next to inquire what causes govern supply prices, that is prices which dealers are willing to accept for different amounts. In the last chapter we looked at the affairs of only a single day; and supposed the stocks offered for sale to be already in existence. But of course these stocks are dependent on the amount of wheat sown in the preceding year; and that, in its turn, was largely influenced by the farmers' guesses as to the price which they would get for it in this year. This is the point at which we have to work in the present chapter. V, III, 1.

Transition to normal values.

Even in the corn-exchange of a country town on a market-day the equilibrium price is affected by calculations of the future relations of production and consumption; while in the leading corn-markets of America and Europe dealings for future delivery already predominate and are rapidly weaving into one web all the leading threads of trade in corn throughout the whole world. Some of these dealings in "futures" are but incidents in speculative manœuvres; but in the main they are governed by calculations of the world's consumption on the one hand, and of the existing stocks and coming harvests in the Northern and Southern hemispheres on the other. Dealers take account of the areas sown with each kind of grain, of the forwardness and weight of the crops, of the supply of things which can be used as substitutes for grain, and of the things for which grain can be used as a substitute. Thus, when buying or selling barley, they take account of the supplies of such things as sugar, which can be used as substitutes for it in brewing, and again of all the various feeding stuffs, a scarcity of which might raise the value of barley for consumption on the farm. If it is thought that the growers of any kind of grain in any part of the world have been losing money, and are likely to sow a less area for a future harvest; it is argued that prices are likely to rise as soon as that harvest comes into sight, and its shortness is manifest to all. Anticipations of that rise exercise an influence on present sales for future delivery, and that in its turn influences cash prices; so that these prices are indirectly affected by estimates of the expenses of producing further supplies.

Nearly all dealings in commodities that are not very perishable, are affected by calculations of the future;

V, III, 2.

and we are now to consider slow and gradual adjustments of supply and demand.

But in this and the following chapters we are specially concerned with movements of prices ranging over still longer periods than those for which the most far-sighted dealers in futures generally make their reckoning: we have to consider the volume of production adjusting itself to the conditions of the market, and the normal price being thus determined at the position of stable equilibrium of normal demand and normal supply.

The account of supply price carried a little further.

§ 2. In this discussion we shall have to make frequent use of the terms *cost* and *expenses* of production; and some provisional account of them must be given before proceeding further.

We may revert to the analogy between the supply price and the demand price of a commodity. Assuming for the moment that the efficiency of production depends solely upon the exertions of the workers, we saw that "the price required to call forth the exertion necessary for producing any given amount of a commodity may be called the supply price for that amount, with reference of course to a given unit of time."[1] But now we have to take account of the fact that the production of a commodity generally requires many different kinds of labour and the use of capital in many forms. The exertions of all the different kinds of labour that are directly or indirectly involved in making it; together with the abstinences or rather the waitings required for saving the capital used in making it: all these efforts and sacrifices together will be called the *real cost of production* of the commodity. The sums of money that have to be paid for these efforts and sacrifices will be called either its *money cost of production*, or, for shortness, its *expenses of production*; they are the prices which have to be paid in order to call forth an adequate supply of the efforts and waitings that are required for making it; or, in other words, they are its supply price.[2]

Real and money cost of production.

Expenses of production.

The analysis of the expenses of production of a commodity

[1] IV. I. 2.

[2] Mill and some other economists have followed the practice of ordinary life in using the term Cost of production in two senses, sometimes to signify the difficulty of producing a thing, and sometimes to express the outlay of money that has to be incurred in order to induce people to overcome this difficulty and produce it. But by passing from one use of the term to the other without giving explicit warning, they have led to many misunderstandings and much barren controversy. The attack on Mill's doctrine of Cost of Production in relation to Value, which is made in Cairnes' *Leading Principles*, was published just after Mill's death; and unfortunately his interpretation of Mill's words was generally accepted as authoritative, because he was regarded as a follower of Mill. But in an article by the present writer on "Mill's Theory of Value" (*Fortnightly Review*, April 1876) it is argued that Cairnes had mistaken Mill's meaning, and had really seen not more but less of the truth than Mill had done.

The expenses of production of any amount of a raw commodity may best be estimated with reference to the "margin of production" at which no rent is paid. But this method of speaking has great difficulties with regard to commodities that obey the law of increasing return. It seemed best to note this point in passing: it will be fully discussed later on, chiefly in ch. XII.

V, III, 3.

might be carried backward to any length; but it is seldom worth while to go back very far. It is for instance often sufficient to take the supply price of the different kinds of raw materials used in any manufacture as ultimate facts, without analysing these supply prices into the several elements of which they are composed; otherwise indeed the analysis would never end. We may then arrange the things that are required for making a commodity into whatever groups are convenient, and call them its *factors of production*. Its expenses of production when any given amount of it is produced are thus the supply prices of the corresponding quantities of its factors of production. And the sum of these is the supply price of that amount of the commodity.

Factors of production.

§ **3.** The typical modern market is often regarded as that in which manufacturers sell goods to wholesale dealers at prices into which but few trading expenses enter. But taking a broader view, we may consider that the supply price of a commodity is the price at which it will be delivered for sale to that group of persons whose demand for it we are considering; or, in other words, in the market which we have in view. On the character of that market will depend how many trading expenses have to be reckoned to make up the supply price.[1] For instance, the supply price of wood in the neighbourhood of Canadian forests often consists almost exclusively of the price of the labour of lumber men: but the supply price of the same wood in the wholesale London market consists in a large measure of freights: while its supply price to a small retail buyer in an English country town is more than half made up of the charges of the railways and middlemen who have brought what he wants to his doors, and keep a stock of it ready for him. Again, the supply price of a certain kind of labour may for some purposes be divided up into the expenses of rearing, of general education and of special trade education. The possible combinations are numberless; and though each may have incidents of its own which will require separate treatment in the complete solution of any problem connected with it, yet all such incidents may be ignored, so far as the general reasonings of this Book are concerned.

There is great variety in the relative importance of different elements of cost of production.

In calculating the expenses of production of a commodity we must take account of the fact that changes in the amounts produced are likely, even when there is no new invention, to be accompanied by changes in the relative quantities of its several factors of pro-

[1] We have already (II. III.) noticed that the economic use of the term "production" includes the production of new utilities by moving a thing from a place in which it is less wanted to a place in which it is more wanted, or by helping consumers to satisfy their needs.

V, III, 4.

duction. For instance, when the scale of production increases, horse or steam power is likely to be substituted for manual labour; materials are likely to be brought from a greater distance and in greater quantities, thus increasing those expenses of production which correspond to the work of carriers, middlemen and traders of all kinds.

The principle of substitution.

As far as the knowledge and business enterprise of the producers reach, they in each case choose those factors of production which are best for their purpose; the sum of the supply prices of those factors which are used is, as a rule, less than the sum of the supply prices of any other set of factors which could be substituted for them; and whenever it appears to the producers that this is not the case, they will, as a rule, set to work to substitute the less expensive method. And further on we shall see how in a somewhat similar way society substitutes one undertaker for another who is less efficient in proportion to his charges. We may call this, for convenience of reference, *The principle of substitution.*

The applications of this principle extend over almost every field of economic inquiry.[1]

The position from which we start.

§ 4. The position then is this: we are investigating the equilibrium of normal demand and normal supply in their most general form; we are neglecting those features which are special to particular parts of economic science, and are confining our attention to those broad relations which are common to nearly the whole of it. Thus we assume that the forces of demand and supply have free play; that there is no close combination among dealers on either side, but each acts for himself, and there is much free competition; that is, buyers generally compete freely with buyers, and sellers compete freely with sellers. But though everyone acts for himself, his knowledge of what others are doing is supposed to be generally sufficient to prevent him from taking a lower or paying a higher price than others are doing. This is assumed provisionally to be true both of finished goods and of their factors of production, of the hire of labour and of the borrowing of capital. We have already inquired to some extent, and we shall have to inquire further, how far these assumptions are in accordance with the actual facts of life. But meanwhile this is the supposition on which we proceed; we assume that there is only one price in the market at one and the same time; it being understood that separate allowance is made, when necessary, for differences in the expense of delivering goods to dealers in different parts of the market; including allowance for the special expenses of retailing, if it is a retail market.

We assume free play for demand and supply in the market.

[1] See III. v. and IV. vii. 8.

General conditions of demand.

In such a market there is a demand price for each amount of the commodity, that is, a price at which each particular amount of the commodity can find purchasers in a day or week or year. The circumstances which govern this price for any given amount of the commodity vary in character from one problem to another; but in every case the more of a thing is offered for sale in a market the lower is the price at which it will find purchasers; or in other words, the demand price for each bushel or yard diminishes with every increase in the amount offered.

The unit of time may be chosen according to the circumstances of each particular problem: it may be a day, a month, a year, or even a generation: but in every case it must be short relatively to the period of the market under discussion. It is to be assumed that the general circumstances of the market remain unchanged throughout this period; that there is, for instance, no change in fashion or taste, no new substitute which might affect the demand, no new invention to disturb the supply.

The conditions of supply will vary with the length of time to which reference is made.

The conditions of normal supply are less definite; and a full study of them must be reserved for later chapters. They will be found to vary in detail with the length of the period of time to which the investigation refers; chiefly because both the material capital of machinery and other business plant, and the immaterial capital of business skill and ability and organization, are of slow growth and slow decay.

But we may provisionally regard normal supply price as the expenses of production, including gross earnings of management, of a representative firm.

Let us call to mind the "representative firm," whose economies of production, internal and external, are dependent on the aggregate volume of production of the commodity that it makes;[1] and, postponing all further study of the nature of this dependence, let us assume that the normal supply price of any amount of that commodity may be taken to be its normal expenses of production (including *gross* earnings of managements[2]) by that firm. That is, let us assume that this is the price the expectation of which will just suffice to maintain the existing aggregate amount of production; some firms meanwhile rising and increasing their output, and others falling and diminishing theirs; but the aggregate production remaining unchanged. A price higher than this would increase the growth of the rising firms, and slacken, though it might not arrest, the decay of the falling firms; with the net result of an increase in the aggregate production. On the other hand, a price lower than this would hasten the decay of the falling firms, and slacken the growth of the rising firms; and on the whole diminish production: and a rise or fall of price would affect in like manner though perhaps

[1] See IV. XIII. 2.

[2] See last paragraph of IV. XII.

V, III, 5.

not in an equal degree those great joint-stock companies which often stagnate, but seldom die.

The construction of the list of prices at which a thing can be supplied; or its supply schedule.

§ 5. To give definiteness to our ideas let us take an illustration from the woollen trade. Let us suppose that a person well acquainted with the woollen trade sets himself to inquire what would be the normal supply price of a certain number of millions of yards annually of a particular kind of cloth. He would have to reckon (i) the price of the wool, coal, and other materials which would be used up in making it, (ii) wear-and-tear and depreciation of the buildings, machinery and other fixed capital, (iii) interest and insurance on all the capital, (iv) the wages of those who work in the factories, and (v) the gross earnings of management (including insurance against loss), of those who undertake the risks, who engineer and superintend the working. He would of course estimate the supply prices of all these different factors of production of the cloth with reference to the amounts of each of them that would be wanted, and on the supposition that the conditions of supply would be normal; and he would add them all together to find the supply price of the cloth.

Let us suppose a list of supply prices (or a supply schedule) made on a similar plan to that of our list of demand prices:[1] the supply price of each amount of the commodity in a year, or any other unit of time, being written against that amount.[2] As the

[1] See III. III. 4.

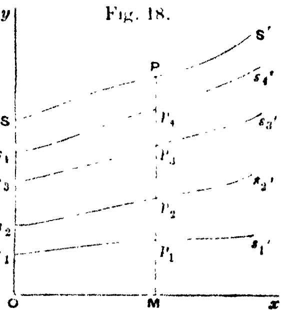


Fig. 18.

[2] Measuring, as in the case of the demand curve, amounts of the commodity along *Ox* and prices parallel to *Oy*, we get for each point *M* along *Ox* a line *MP* drawn at right angles to it measuring the supply price for the amount *OM*, the extremity of which, *P*, may be called a *supply point*; this price *MP* being made up of the supply prices of the several factors of production for the amount *OM*. The locus of *P* may be called the *supply curve*.

Suppose, for instance, that we classify the expenses of production of our representative firm, when an amount *OM* of cloth is being produced under the heads of (i) Mp_1, the supply price of the wool and other circulating capital which would be consumed in making it, (ii) p_1p_2 the corresponding wear-and-tear and depreciation on buildings, machinery and other fixed capital; (iii) p_2p_3 the interest and insurance on all the capital, (iv) p_3p_4 the wages of those who work in the factory, and (v) p_4P the gross earnings of management, etc. of those who undertake the risks and direct the work. Thus as *M* moves from *O* towards the right p_1, p_2, p_3, p_4 will each trace out a curve, and the ultimate supply curve traced out by *P* will be thus shown as obtained by superimposing the supply curves for the several factors of production of the cloth.

It must be remembered that these supply prices are the prices not of units of the several factors but of those amounts of the several factors which are required for producing a yard of cloth. Thus, for instance, p_3p_4 is the supply price not of any fixed amount of labour but of that amount of labour which is employed to making a yard where there is an aggregate production of *OM* yards. (See above, § 3.) We need not trouble ourselves to consider just here whether the ground-rent of the factory must be put into a class by itself: this belongs to a group of questions which will be discussed later. We are taking no notice of rates and taxes, for which he would of course have to make his account.

flow, or (annual) amount of the commodity increases, the supply price may either increase or diminish; or it may even alternately increase and diminish.[1] For if nature is offering a sturdy resistance to man's efforts to wring from her a larger supply of raw material, while at that particular stage there is no great room for introducing important new economies into the manufacture, the supply price will rise; but if the volume of production were greater, it would perhaps be profitable to substitute largely machine work for hand work and steam power for muscular force; and the increase in the volume of production would have diminished the expenses of production of the commodity of our representative firm. But those cases in which the supply price falls as the amount increases involve special difficulties of their own; and they are postponed to chapter XII of this Book.

What is meant by equilibrium.

§ 6. When therefore the amount produced (in a unit of time) is such that the demand price is greater than the supply price, then sellers receive more than is sufficient to make it worth their while to bring goods to market to that amount; and there is at work an active force tending to increase the amount brought forward for sale. On the other hand, when the amount produced is such that the demand price is less than the supply price, sellers receive less than is sufficient to make it worth their while to bring goods to market on that scale; so that those who were just on the margin of doubt as to whether to go on producing are decided not to do so, and there is an active force at work tending to diminish the amount brought forward for sale. When the demand price is equal to the supply price, the amount produced has no tendency either to be increased or to be diminished; it is in equilibrium.

Equilibrium-amount and *equilibrium-price.*

When demand and supply are in equilibrium, the amount of the commodity which is being produced in a unit of time may be called the *equilibrium-amount*, and the price at which it is being sold may be called the *equilibrium-price*.

Stable equilibria, the conditions under which they occur.

Such an equilibrium is *stable*; that is, the price, if displaced a little from it, will tend to return, as a pendulum oscillates about its lowest point; and it will be found to be a characteristic of stable equilibria that in them the demand price is greater than the supply price for amounts just less than the equilibrium amount, and *vice versâ*. For when the demand price is greater than the supply price, the amount produced tends to increase. Therefore, if the demand

[1] That is, a point moving along the supply curve towards the right may either rise or fall, or even it may alternately rise and fall; in other words, the supply curve may be inclined positively or negatively, or even at some parts of its course it may be inclined positively and at others negatively. (See p. 84, n.[1].)

V, III, 6. price is greater than the supply price for amounts just less than an equilibrium amount; then, if the scale of production is temporarily diminished somewhat below that equilibrium amount, it will tend to return; thus the equilibrium is stable for displacements in that direction. If the demand price is greater than the supply price for amounts just less than the equilibrium amount, it is sure to be less than the supply price for amounts just greater: and therefore, if the scale of production is somewhat increased beyona the equilibrium position, it will tend to return; and the equilibrium will be stable for displacements in that direction also.

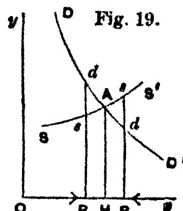
Oscillations about a position of stable equilibrium

When demand and supply are in stable equilibrium, if any accident should move the scale of production from its equilibrium position, there will be instantly brought into play forces tending to push it back to that position; just as, if a stone hanging by a string is displaced from its equilibrium position, the force of gravity will at once tend to bring it back to its equilibrium position. The movements of the scale of production about its position of equilibrium will be of a somewhat similar kind.[1]

are seldom rhythmical.

But in real life such oscillations are seldom as rhythmical as those of a stone hanging freely from a string; the comparison would be more exact if the string were supposed to hang in the troubled waters of a mill-race, whose stream was at one time allowed to flow freely, and at another partially cut off. Nor are these complexities sufficient to illustrate all the disturbances with which the economist and the merchant alike are forced to concern themselves. If the person holding the string swings his hand with movements partly rhythmical and partly arbitrary, the illustration will not outrun the difficulties of some very real and practical problems of value. For indeed the demand and supply schedules do not

[1] Compare V. I. 1. To represent the equilibrium of demand and supply geometrically we may draw the demand and supply curves together as in Fig. 19. If then OR represents the rate at which production is being actually carried on, and Rd the demand price is greater than Rs the supply price, the production is exceptionally profitable, and will be increased. R, the *amount-index*, as we may call it, will move to the right. On the other hand, if Rd is less than Rs, R will move to the left. If Rd is equal to Rs, that is, if R is vertically under a point of intersection of the curves, demand and supply are in equilibrium.



This may be taken as the typical diagram for stable equilibrium for a commodity that obeys the law of diminishing return. But if we had made SS' a horizontal straight line, we should have represented the case of "constant return," in which the supply price is the same for all amounts of the commodity. And if we made SS' inclined negatively, but less steeply than DD' (the necessity for this condition will appear more fully later on), we should have got a case of stable equilibrium for a commodity which obeys the law of increasing return. In either case the above reasoning remains unchanged without the alteration of a word or a letter; but the last case introduces difficulties which we have arranged to postpone.

in practice remain unchanged for a long time together, but are constantly being changed; and every change in them alters the equilibrium amount and the equilibrium price, and thus gives new positions to the centres about which the amount and the price tend to oscillate.

Loose connection between supply price and real cost of production; significance of the phrases *Normal equilibrium* and *In the long run.*

These considerations point to the great importance of the element of time in relation to demand and supply, to the study of which we now proceed. We shall gradually discover a great many different limitations of the doctrine that the price at which a thing can be produced represents its real cost of production, that is, the efforts and sacrifices which have been directly devoted to its production. For, in an age of rapid change such as this, the equilibrium of normal demand and supply does not thus correspond to any distinct relation of a certain aggregate of pleasures got from the consumption of the commodity and an aggregate of efforts and sacrifices involved in producing it: the correspondence would not be exact, even if normal earnings and interest were exact measures of the efforts and sacrifices for which they are the money payments. This is the real drift of that much quoted, and much-misunderstood doctrine of Adam Smith and other economists that the normal, or "natural," value of a commodity is that which economic forces tend to bring about *in the long run.* It is the average value which economic forces would bring about if the general conditions of life were stationary for a run of time long enough to enable them all to work out their full effect.[1]

But we cannot foresee the future perfectly. The unexpected may happen; and the existing tendencies may be modified before they have had time to accomplish what appears now to be their full and complete work. The fact that the general conditions of life are not stationary is the source of many of the difficulties that are met with in applying economic doctrines to practical problems.

Of course Normal does not mean Competitive. Market prices and Normal prices are alike brought about by a multitude of influences, of which some rest on a moral basis and some on a physical; of which some are competitive and some are not. It is to the persistence of the influences considered, and the time allowed for them to work out their effects that we refer when contrasting Market and Normal price, and again when contrasting the narrower and the broader use of the term Normal price.[2]

Influences of utility and cost

§ 7. The remainder of the present volume will be chiefly occupied with interpreting and limiting this doctrine that the value of a thing

[1] See below V. v. 2 and Appendix H. 4.

[2] See above pp. 28–30.

V, III, 7.

of production on value

tends in the long run to correspond to its cost of production. In particular the notion of equilibrium, which has been treated rather slightly in this chapter, will be studied more carefully in chapters V. and XII. of this Book: and some account of the controversy whether "cost of production" or "utility" governs value will be given in Appendix I. But it may be well to say a word or two here on this last point.

We might as reasonably dispute whether it is the upper or the under blade of a pair of scissors that cuts a piece of paper, as whether value is governed by utility or cost of production. It is true that when one blade is held still, and the cutting is effected by moving the other, we may say with careless brevity that the cutting is done by the second; but the statement is not strictly accurate, and is to be excused only so long as it claims to be merely a popular and not a strictly scientific account of what happens.

The former preponderates in market values:

In the same way, when a thing already made has to be sold, the price which people will be willing to pay for it will be governed by their desire to have it, together with the amount they can afford to spend on it. Their desire to have it depends partly on the chance that, if they do not buy it, they will be able to get another thing like it at as low a price: this depends on the causes that govern the supply of it, and this again upon cost of production. But it may so happen that the stock to be sold is practically fixed. This, for instance, is the case with a fish market, in which the value of fish for the day is governed almost exclusively by the stock on the slabs in relation to the demand: and if a person chooses to take the stock for granted, and say that the price is governed by demand, his brevity may perhaps be excused so long as he does not claim strict accuracy. So again it may be pardonable, but it is not strictly accurate to say that the varying prices which the same rare book fetches, when sold and resold at Christie's auction room, are governed exclusively by demand.

the latter in normal values.

Taking a case at the opposite extreme, we find some commodities which conform pretty closely to the law of constant return; that is to say, their average cost of production will be very nearly the same whether they are produced in small quantities or in large. In such a case the normal level about which the market price fluctuates will be this definite and fixed (money) cost of production. If the demand happens to be great, the market price will rise for a time above the level; but as a result production will increase and the market price will fall: and conversely, if the demand falls for a time below its ordinary level.

In such a case, if a person chooses to neglect market fluctuations, and to take it for granted that there will anyhow be enough demand for the commodity to insure that some of it, more or less, will find purchasers at a price equal to this cost of production, then he may be excused for ignoring the influence of demand, and speaking of (normal) price as governed by cost of production—provided only he does not claim scientific accuracy for the wording of his doctrine, and explains the influence of demand in its right place.

Thus we may conclude that, *as a general rule*, the shorter the period which we are considering, the greater must be the share of our attention which is given to the influence of demand on value; and the longer the period, the more important will be the influence of cost of production on value. For the influence of changes in cost of production takes as a rule a longer time to work itself out than does the influences of changes in demand. The actual value at any time, the market value as it is often called, is often more influenced by passing events and by causes whose action is fitful and short lived, than by those which work persistently. But in long periods these fitful and irregular causes in large measure efface one another's influence; so that in the long run persistent causes dominate value completely. Even the most persistent causes are however liable to change. For the whole structure of production is modified, and the relative costs of production of different things are permanently altered, from one generation to another.

The business man is concerned with money costs; but the evolution of normal value with real costs.

When considering costs from the point of view of the capitalist employer, we of course measure them in money; because his direct concern with the efforts needed for the work of his employees lies in the money payments he must make. His concern with the real costs of their effort and of the training required for it is only indirect, though a monetary assessment of his own labour is necessary for some problems, as will be seen later on. But when considering costs from the social point of view, when inquiring whether the cost of attaining a given result is increasing or diminishing with changing economic conditions, then we are concerned with the real costs of efforts of various qualities, and with the real cost of waiting. If the purchasing power of money, in terms of effort has remained about constant, and if the rate of remuneration for waiting has remained about constant, then the money measure of costs corresponds to the real costs: but such a correspondence is never to be assumed lightly. These considerations will generally suffice for the interpretation of the term Cost in what follows, even where no distinct indication is given in the context.

The policy of investment for a distant return may be clearly seen in the case of a man who makes a thing for his own use.

CHAPTER IV

THE INVESTMENT AND DISTRIBUTION OF RESOURCES

§ 1. THE first difficulty to be cleared up in our study of normal values, is the nature of the motives which govern the investment of resources for a distant return. It will be well to begin by watching the action of a person who neither buys what he wants nor sells what he makes, but works on his own behalf; and who therefore balances the efforts and sacrifices which he makes on the one hand against the pleasures which he expects to derive from their fruit on the other, without the intervention of any money payments at all.

Let us then take the case of a man who builds a house for himself on land, and of materials, which nature supplies gratis; and who makes his implements as he goes, the labour of making them being counted as part of the labour of building the house. He would have to estimate the efforts required for building on any proposed plan; and to allow almost instinctively an amount increasing in geometrical proportion (a sort of compound interest) for the period that would elapse between each effort and the time when the house would be ready for his use. The utility of the house to him when finished would have to compensate him not only for the efforts, but for the waitings.[1]

If the two motives, one deterring, the other impelling, seemed equally balanced, he would be on the margin of doubt. Probably the gain would much more than outweigh the "real" cost with regard to some part of the house. But as he turned over more and more ambitious plans, he would at last find the advantages of any

[1] For he might have applied these efforts, or efforts equivalent to them, to producing immediate gratifications; and if he deliberately chose the deferred gratifications, it would be because, even after allowing for the disadvantages of waiting, he regarded them as outweighing the earlier gratifications which he could have substituted for them. The motive force then tending to deter him from building the house would be his estimate of the aggregate of these efforts, the evil or discommodity of each being increased in geometrical proportion (a sort of compound interest) according to the corresponding interval of waiting. The motive on the other hand impelling him to build it, would be expectation of the satisfaction which he would have from the house when completed; and that again might be resolved into the aggregate of many satisfactions more or less remote, and more or less certain, which he expected to derive from its use. If he thought that this aggregate of discounted values of satisfactions that it would afford him, would be more than a recompense to him for all the efforts and waitings which he had undergone, he would decide to build. (See III. v. 3, IV. VII. 8 and Note XIII in the Mathematical Appendix.)

further extension balanced by the efforts and waitings required for making it; and that extension of the building would be on the outer limit, or margin of profitableness of the investment of his capital.

There would probably be several ways of building parts of the house; some parts for instance might almost equally well be built of wood or of rough stones: the investment of capital on each plan for each part of the accommodation would be compared with the advantages offered thereby, and each would be pushed forward till the outer limit or margin of profitableness had been reached. Thus there would be a great many margins of profitableness: one corresponding to each kind of plan on which each kind of accommodation might be provided.

Transition to the investment of capital by the modern undertaker of business enterprises.

§ 2. This illustration may serve to keep before us the way in which the efforts and sacrifices which are the real cost of production of a thing, underlie the expenses which are its money cost. But, as has just been remarked, the modern business man commonly takes the payments which he has to make, whether for wages or raw material, as he finds them; without staying to inquire how far they are an accurate measure of the efforts and sacrifices to which they correspond. His expenditure is generally made piece-meal; and the longer he expects to wait for the fruit of any outlay, the richer must that fruit be in order to compensate him. The anticipated fruit may not be certain; and in that case he will have to allow for the risk of failure. After making that allowance, the fruit of the outlay must be expected to exceed the outlay itself by an amount which, independently of his own remuneration, increases at compound interest in proportion to the time of waiting.[1] Under this head are to be entered the heavy expenses, direct and indirect, which every business must incur in building up its connection.

Accumulation of past and *discounting* of future outlays and receipts.

For brevity we may speak of any element of outlay (allowance being made for the remuneration of the undertaker himself) when increased by compound interest in this way, as *accumulated*; just as we used the term *discounted* to represent the present value of a future gratification. Each element of outlay has then to be accumulated for the time which will elapse between its being incurred and its bearing fruit; and the aggregate of these accumulated elements is the total outlay involved in the enterprise. The balance between efforts and the satisfactions resulting from them

[1] We may, if we choose, regard the price of the business undertaker's own work as part of the original outlay, and reckon compound interest on it together with the rest. Or we may substitute for compound interest a sort of "compound profit." The two courses are not strictly convertible: and at a later stage we shall find that in certain cases the first is to be preferred, and in others the second.

V, IV, 2. may be made up to any day that is found convenient. But whatever day is chosen, one simple rule must be followed:—Every element whether an effort or a satisfaction, which dates from a time anterior to that day, must have compound interest for the interval accumulated upon it: and every element, which dates from a time posterior to that day, must have compound interest for the interval discounted from it. If the day be anterior to the beginning of the enterprise, then every element must be discounted. But if, as is usual in such cases, the day be that when the efforts are finished, and the house is ready for use; then the efforts must carry compound interest up to that day, and the satisfactions must all be discounted back to that day.

Waiting is an element of cost as truly as effort is, and it is entered in the cost when accumulated: it is therefore of course not counted separately. Similarly, on the converse side, whatever money or command over satisfaction "comes in" at any time is part of the income of that time: if the time is before the day for which accounts are balanced up, then it must be accumulated up to that day; if after, it must be discounted back. If, instead of being converted to immediate enjoyment, it is used as a stored up source of future income, that later income must not be counted as an *additional* return to the investment.[1]

If the enterprise were, say, to dig out a dock-basin on a contract, the payment for which would be made without fail when the work was finished; and if the plant used in the work might be taken to be worn out in the process, and valueless at the end of it; then the enterprise would be just remunerative if this aggregate of outlays, accumulated up to the period of payment, were just equal to that payment.

But, as a rule, the proceeds of the sales come in gradually; and we must suppose a balance-sheet struck, looking both backwards and forwards. Looking backwards we should sum up the net outlays, and add in accumulated compound interest on each element of outlay. Looking forwards we should sum up all net incomings, and from the value of each subtract compound interest

[1] In the aggregate the income from the saving will in the ordinary course be larger in amount than the saving by the amount of the interest that is the reward of saving. But, as it will be turned to account in enjoyment later than the original saving could have been, it will be discounted for a longer period (or accumulated for a shorter); and if entered in the balance sheet of the investment in place of the original saving, it would stand for exactly the same sum. (Both the original income which was saved and the subsequent income earned by it are assessed to income tax; on grounds similar to those which make it expedient to levy a larger income tax from the industrious than from the lazy man.) The main argument of this section is expressed mathematically in Note XIII.

for the period during which it would be deferred. The aggregate of the net incomings so discounted would be balanced against the aggregate of the accumulated outlays: and if the two were just equal, the business would be just remunerative. In calculating the outgoings the head of the business must reckon in the value of his own work.[1] V, IV, 3.

The principle of substitution.

§ 3. At the beginning of his undertaking, and at every successive stage, the alert business man strives so to modify his arrangements as to obtain better results with a given expenditure, or equal results with a less expenditure. In other words, he ceaselessly applies the principle of substitution, with the purpose of increasing his profits; and, in so doing, he seldom fails to increase the total efficiency of work, the total power over nature which man derives from organization and knowledge.

Every locality has incidents of its own which affect in various ways the methods of arrangement of every class of business that is carried on in it: and even in the same place and the same trade no two persons pursuing the same aims will adopt exactly the same routes. The tendency to variation is a chief cause of progress; and the abler are the undertakers in any trade the greater will this tendency be. In some trades, as for instance cotton-spinning, the possible variations are confined within narrow limits; no one can hold his own at all who does not use machinery, and very nearly the latest machinery, for every part of the work. But in others, as for instance in some branches of the wood and metal trades, in farming, and in shopkeeping, there can be great variations. For instance, of two manufacturers in the same trade, one will perhaps

[1] Almost every trade has its own difficulties and its own customs connected with the task of valuing the capital that has been invested in a business, and of allowing for the depreciation which that capital has undergone from wear-and-tear, from the influence of the elements, from new inventions, and from changes in the course of trade. These two last causes may temporarily raise the value of some kinds of fixed capital, at the same time that they are lowering that of others. And people whose minds are cast in different moulds, or whose interests in the matter point in different directions, will often differ widely on the question what part of the expenditure required for adapting buildings and plant to changing conditions of trade, may be regarded as an investment of new capital; and what ought to be set down as charges incurred to balance depreciation, and treated as expenditure deducted from the current receipts, before determining the net profits or true income earned by the business. These difficulties, and the consequent difference of opinion, are greatest of all with regard to the investment of capital in building up a business connection, and the proper method of appraising the goodwill of a business, or its value "as a going concern." On the whole of this subject see Matheson's *Depreciation of Factories and their Valuation.*

Another group of difficulties arises from changes in the general purchasing power of money. If that has fallen, or, in other words, if there has been a rise of general prices, the value of a factory may appear to have risen when it has really remained stationary. Confusions arising from this source introduce greater errors into estimates of the real profitableness of different classes of business than would at first sight appear probable. But all questions of this kind must be deferred till we have discussed the theory of money.

V, IV, 4.

have a larger wages bill and the other heavier charges on account of machinery; of two retail dealers one will have a larger capital locked up in stock and the other will spend more on advertisements and other means of building up the immaterial capital of a profitable trade connection. And in minor details the variations are numberless.

The margin of profitableness is not a mere point on any one route, but a line intersecting all routes.

Each man's actions are influenced by his special opportunities and resources, as well as by his temperament and his associations: but each, taking account of his own means, will push the investment of capital in his business in each several direction until what appears in his judgment to be the outer limit, or margin, of profitableness is reached; that is, until there seems to him no good reason for thinking that the gains resulting from any further investment in that particular direction would compensate him for his outlay. The margin of profitableness, even in regard to one and the same branch or sub-branch of industry, is not to be regarded as a mere point on any one fixed line of possible investment; but as a boundary line of irregular shape cutting one after another every possible line of investment.

Affinities between the principles of substitution, of diminishing utility and diminishing return.

The correlation of consumption and production.

§ 4. This principle of substitution is closely connected with, and is indeed partly based on, that tendency to a diminishing rate of return from any excessive application of resources or of energies in any given direction, which is in accordance with general experience. It is thus linked up with the broad tendency of a diminishing return to increased applications of capital and labour to land in old countries which plays a prominent part in classical economics. And it is so closely akin to the principle of the diminution of marginal utility that results in general from increased expenditure, that some applications of the two principles are almost identical. It has already been observed that new methods of production bring into existence new commodities, or lower the price of old commodities so as to bring them within the reach of increased numbers of consumers: that on the other hand changes in the methods and volume of consumption cause new developments of production, and new distribution of the resources of production: and that though some methods of consumption which contribute most to man's higher life, do little if anything towards furthering the production of material wealth, yet production and consumption are intimately correlated.[1] But now we are to consider more in detail how the distribution of the resources of production between different industrial undertakings is the counterpart and reflex of the distribu-

[1] See pp. 70–77, and 53–56.

tion of the consumers' purchases between different classes of commodities.[1] V, IV, 4.

The distribution of resources in domestic economy.

Let us revert to the primitive housewife, who having "a limited number of hanks of yarn from the year's shearing, considers all the domestic wants for clothing and tries to distribute the yarn between them in such a way as to contribute as much as possible to the family wellbeing. She will think she has failed if, when it is done, she has reason to regret that she did not apply more to making, say, socks, and less to vests. But if, on the other hand, she hit on the right points to stop at, then she made just so many socks and vests that she got an equal amount of good out of the last bundle of yarn that she applied to socks, and the last she applied to vests."[2] If it happened that two ways of making a vest were open to her, which were equally satisfactory as regards results, but of which one, while using up a little more yarn, involved a little less trouble than the other; then her problems would be typical of those of the larger business world. They would include first decisions as to the relative urgency of various ends; secondly, decisions as to the relative advantages of various means of attaining each end; thirdly, decisions, based on these two sets of decisions, as to the margin up to which she could most profitably carry the application of each means towards each end.

The distribution of resources in business economy.

Illustration from the building trade.

These three classes of decisions have to be taken on a larger scale by the business man, who has more complex balancings and adjustments to make before reaching each decision.[3] Let us take an illustration from the building trade. Let us watch the operations of a "speculative builder" in the honourable sense of the term: that is, a man who sets out to erect honest buildings in anticipation of general demand; who bears the penalty of any error in his judgment; and who, if his judgment is approved by events, benefits the community as well as himself. Let him be considering whether to erect dwelling houses, or warehouses, or factories or shops. He is trained to form at once a fairly good opinion as to the method of working most suitable for each class of building, and to make a rough estimate of its cost. He estimates the cost of various sites adapted for each class of building: and he reckons in the price that he would have to

[1] The substance of part of this section was placed in VI. I. 7 in earlier editions. But it seems to be needed here in preparation for the central chapters of Book V.

[2] See III. v. 1.

[3] The remainder of this section goes very much on the lines of the earlier half of Note XIV. in the Mathematical Appendix; which may be read in connection with it. The subject is one in which the language of the differential calculus—*not* its reasonings—are specially helpful to clear thought: but the main outlines can be presented in ordinary language.

V, IV, 4. pay for any site as a part of his capital expenditure, just as he does the expense to which he would be put for laying foundations in it, and so on. He brings this estimate of cost into relation with his estimate of the price he is likely to get for any given building, together with its site. If he can find no case in which the demand price exceeds his outlays by enough to yield him a good profit, with some margin against risks, he may remain idle. Or he may possibly build at some risk in order to keep his most trusty workmen together, and to find some occupation for his plant and his salaried assistance : but more on this later on.

Suppose him now to have decided that (say) villa residences of a certain type, erected on a plot of ground which he can buy, are likely to yield him a good profit. The main end to be sought being thus settled, he sets himself to study more carefully the means by which it is to be obtained, and, in connection with that study, to consider possible modifications in the details of his plans.

Given the general character of the houses to be built, he will have to consider in what proportions to use various materials—brick, stone, steel, cement, plaster, wood, etc., with a view to obtaining the result which will contribute most, in proportion to its cost, to the efficiency of the house in gratifying the artistic taste of purchasers and in ministering to their comfort. In thus deciding what is the best distribution of his resources between various commodities, he is dealing with substantially the same problem as the primitive housewife, who has to consider the most economic distribution of her yarn between the various needs of her household.

Like her, he has to reflect that the yield of benefit which any particular use gave would be relatively large up to a certain point, and would then gradually diminish. Like her, he has so to distribute his resources that they have the same marginal utility in each use : he has to weigh the loss that would result from taking away a little expenditure here, with the gain that would result from adding a little there. In effect both of them work on lines similar to those which guide the farmer in so adjusting the application of his capital and labour to land, that no field is stinted of extra cultivation to which it would have given a generous return, and none receives so great an expenditure as to call into strong activity the tendency to diminishing return in agriculture.[1]

Thus it is that the alert business man, as has just been said, "pushes the investment of capital in his business in each several direction until what appears in his judgment to be the outer limit,

[1] See above III. III. 1; and the footnote on pp. 130.

or margin, of profitableness is reached; that is, until there seems to him no good reason for thinking that the gains resulting from any further investment in that particular direction would compensate him for his outlay." He never assumes that roundabout methods will be remunerative in the long run. But he is always on the look out for roundabout methods that promise to be more effective in proportion to their cost than direct methods: and he adopts the best of them, if it lies within his means. V, IV, 5.

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Prime cost.

§ 5. Some technical terms relating to costs may be considered here. When investing his capital in providing the means of carrying on an undertaking, the business man looks to being recouped by the price obtained for its various products; and he expects to be able under normal conditions to charge for each of them a sufficient price; that is, one which will not only cover the *special*, *direct*, or *prime cost*, but also bear its proper share of the general expenses of the business; and these we may call its general, or *supplementary cost*. These two elements together make its *total cost*.

Prime or special cost.

Supplementary and total cost.

There are great variations in the usage of the term Prime cost in business. But it is here taken in a narrow sense. Supplementary costs are taken to include standing charges on account of the durable plant in which much of the capital of the business has been invested, and also the salaries of the upper employees: for the charges to which the business is put on account of their salaries cannot generally be adapted quickly to changes in the amount of work there is for them to do. There remains nothing but the (money) cost of the raw material used in making the commodity and the wages of that part of the labour spent on it which is paid by the hour or the piece and the extra wear-and-tear of plant. This is the special cost which a manufacturer has in view, when his works are not fully employed, and he is calculating the lowest price at which it will be worth his while to accept an order, irrespectively of any effect that his action may have in spoiling the market for future orders, and trade being slack at the time. But in fact he must as a rule take account of this effect: the price at which it is just worth his while to produce, even when trade is slack, is in practice generally a good deal above this prime cost, as we shall see later on.[1]

[1] Especially in V. IX. "There are many systems of Prime Cost in vogue . . . we take Prime Cost to mean, as in fact the words imply, only the original or direct cost of production; and while in some trades it may be a matter of convenience to include in the cost of production a proportion of indirect expenses, and a charge for depreciation on plant and buildings, in no case should it comprise interest on capital or profit." (Garcke and Fells, *Factory Accounts*, ch. I.)

V, IV, 6.

The division between prime and supplementary costs varies with the duration of the undertaking. Illustration from wages and salaries.

§ 6. Supplementary cost must generally be covered by the selling price to some considerable extent in the short run. And they must be completely covered by it in the long run; for, if they are not, production will be checked. Supplementary costs are of many different kinds; and some of them differ only in degree from prime costs. For instance, if an engineering firm is in doubt whether to accept an order at a rather low price for a certain locomotive, the absolute prime costs include the value of the raw material and the wages of the artisans and labourers employed on the locomotive. But there is no clear rule as to the salaried staff: for, if work is slack, they will probably have some time on their hands; and their salaries will therefore commonly be classed among general or supplementary costs. The line of division is however often blurred over. For instance, foremen and other trusted artisans are seldom dismissed merely because of a temporary scarcity of work; and therefore an occasional order may be taken to fill up idle time, even though its price does not cover their salaries and wages. That is they may not be regarded as prime costs in such a case. But, of course the staff in the office can be in some measure adjusted to variations in the work of the firm by leaving vacancies unfilled and even by weeding out inefficient men during slack times; and by getting extra help or putting out some of the work in busy times.

Illustration from outlay on plant.

If we pass from such tasks to larger and longer tasks, as for instance the working out a contract to deliver a great number of locomotives gradually over a period of several years, then most of the office work done in connection with that order must be regarded as special to it: for if it had been declined and nothing else taken in its place, the expenses under the head of salaries could have been reduced almost to a proportionate extent.

The case is much stronger when we consider a fairly steady market for any class of staple manufactures extending over a long time. For then the outlay incurred for installing specialized skill and organization, the permanent office staff, and the durable plant of the workshops can all be regarded as part of the costs necessary for the process of production. That outlay will be increased up to a margin at which the branch of manufacture seems in danger of growing too fast for its market.

This influence of the element of time is

In the next chapter the argument of Chapter III. and of this chapter is continued. It is shown in more detail how those costs which most powerfully act on supply and therefore on price, are limited to a narrow and arbitrary group in the case of a single

contract for, say, a locomotive; but are much fuller, and correspond much more truly to the broad features of industrial economy in the case of a continuous supply to a fairly steady general market: the influence of cost of production on value does not show itself clearly except in relatively long periods; and it is to be estimated with regard to a whole process of production rather than a particular locomotive, or a particular parcel of goods. And a similar study is made in Chapters VIII.-X. of variations in the character of those prime and supplementary costs which consist of charges for interest (or profits) on investments in agents of production, according as the periods of the market under consideration are long or short.

V, IV, 6.

further developed in Chs. V. and VIII.—X.

Meanwhile it may be noticed that the distinction between prime and supplementary costs operates in every phase of civilization, though it is not likely to attract much attention except in a capitalistic phase. Robinson Crusoe had to do only with real costs and real satisfactions: and an old-fashioned peasant family, which bought little and sold little, arranged its investments of present "effort and waiting" for future benefits on nearly the same lines. But, if either were doubting whether it was worth while to take a light ladder on a trip to gather wild fruits, the prime costs alone would be weighed against the expected benefits: and yet the ladder would not have been made, unless it had been expected to render sufficient service in the aggregate of many little tasks, to remunerate the cost of making it. In the long run it had to repay its total costs, supplementary as well as prime.

The distinction between prime and supplementary costs operates even where neither are reckoned in money.

Even the modern employer has to look at his own labour as a real cost in the first instance. He may think that a certain enterprise is likely to yield a surplus of money incomings over money outgoings (after proper allowances for risks and for discountings of future happenings); but that the surplus will amount to less than the money equivalent of the trouble and worry that the enterprise will cause to himself: and, in that case, he will avoid it.[1]

[1] The Supplementary costs, which the owner of a factory expects to be able to add to the prime costs of its products, are the source of the quasi-rents which it will yield to him. If they come up to his expectation, then his business so far yields good profits: if they fall much short of it, his business tends to go to the bad. But his statement bears only on long-period problems of value: and in that connection the difference between Prime and Supplementary costs has no special significance. The importance of the distinction between them is confined to short-period problems.

CHAPTER V

EQUILIBRIUM OF NORMAL DEMAND AND SUPPLY, CONTINUED, WITH REFERENCE TO LONG AND SHORT PERIODS

V, v, 1.

The difficulties discussed in this chapter as to the element of time are latent in ordinary discourse,

§ 1. THE variations in the scope of the term *Normal*, according as the periods of time under discussion are long or short, were indicated in Chapter III. We are now ready to study them more closely.

In this case, as in others, the economist merely brings to light difficulties that are latent in the common discourse of life, so that by being frankly faced they may be thoroughly overcome. For in ordinary life it is customary to use the word Normal in different senses, with reference to different periods of time; and to leave the context to explain the transition from one to another. The economist follows this practice of every-day life: but, by taking pains to indicate the transition, he sometimes seems to have created a complication which in fact he has only revealed.

where the use of the term Normal is elastic.

Thus, when it is said that the price of wool on a certain day was abnormally high though the average price for the year was abnormally low, that the wages of coal-miners were abnormally high in 1872 and abnormally low in 1879, that the (real) wages of labour were abnormally high at the end of the fourteenth century and abnormally low in the middle of the sixteenth; everyone understands that the scope of the term normal is not the same in these various cases.

The best illustrations of this come from manufactures where the plant is long-lived, and the product is short-lived. When a new textile fabric is first introduced into favour, and there is very little plant suitable for making it, its normal price for some months may be twice as high as those of other fabrics which are not less difficult to make, but for making which there is an abundant stock of suitable plant and skill. Looking at long periods we may say that its normal price is on a par with that of the others: but if during the first few months a good deal of it were offered for sale in a bankrupt's stock we might say that its price was abnormally low even when it was selling for half as much again as the others. Everyone takes the context as indicating the special use of the term in each several case; and a formal interpretation clause is seldom necessary, because in ordinary conversation misunderstandings can

be nipped in the bud by question and answer. But let us look at this matter more closely.

Illustration from the cloth trade.

We have noticed[1] how a cloth manufacturer would need to calculate the expenses of producing all the different things required for making cloth with reference to the amounts of each of them that would be wanted; and on the supposition in the first instance that the conditions of supply would be normal. But we have yet to take account of the fact that he must give to this term a wider or narrower range, according as he was looking more or less far ahead.

Thus in estimating the wages required to call forth an adequate supply of labour to work a certain class of looms, he might take the current wages of similar work in the neighbourhood: or he might argue that there was a scarcity of that particular class of labour in the neighbourhood, that its current wages there were higher than in other parts of England, and that looking forward over several years so as to allow for immigration, he might take the normal rate of wages at a rather lower rate than that prevailing there at the time. Or lastly, he might think that the wages of weavers all over the country were abnormally low relatively to others of the same grade, in consequence of a too sanguine view having been taken of the prospects of the trade half a generation ago. He might argue that this branch of work was overcrowded, that parents had already begun to choose other trades for their children which offered greater net advantages and yet were not more difficult; that in consequence a few years would see a falling-off in the supply of labour suited for his purpose; so that looking forward a long time he must take normal wages at a rate higher than the present average.[2]

Again, in estimating the normal supply price of wool, he would take the average of several past years. He would make allowance for any change that would be likely to affect the supply in the immediate future; and he would reckon for the effect of such droughts as from time to time occur in Australia and elsewhere; since their occurrence is too common to be regarded as abnormal. But he would not allow here for the chance of our being involved in a great war, by which the Australian supplies might be cut off; he would consider that any allowance for this should come under the head of extraordinary trade risks, and not enter into his estimate of the normal supply price of wool.

[1] V. III. 5.

[2] There are indeed not many occasions on which the calculations of a business man for practical purposes need to look forward so far, and to extend the range of the term Normal over a whole generation: but in the broader applications of economic science it is sometimes necessary to extend the range even further, and to take account of the slow changes that in the course of centuries affect the supply price of the labour of each industrial grade.

V, v, 2.

He would deal in the same way with the risk of civil tumult or any violent and long-continued disturbance of the labour market of an unusual character; but in his estimate of the amount of work that could be got out of the machinery, etc. under normal conditions, he would probably reckon for minor interruptions from trade disputes such as are continually occurring, and are therefore to be regarded as belonging to the regular course of events, that is as not abnormal.

In all these calculations he would not concern himself specially to inquire how far mankind are under the exclusive influence of selfish or self-regarding motives. He might be aware that anger and vanity, jealousy and offended dignity are still almost as common causes of strikes and lockouts, as the desire for pecuniary gain: but that would not enter into his calculations. All that he would want to know about them would be whether they acted with sufficient regularity for him to be able to make a reasonably good allowance for their influence in interrupting work and raising the normal supply price of the goods.[1]

The complex problem of value must be broken up.

§ 2. The element of time is a chief cause of those difficulties in economic investigations which make it necessary for man with his limited powers to go step by step; breaking up a complex question, studying one bit at a time, and at last combining his partial solutions into a more or less complete solution of the whole riddle. In breaking it up, he segregates those disturbing causes, whose wanderings happen to be inconvenient, for the time in a pound called *Cœteris Paribus*. The study of some group of tendencies is isolated by the assumption *other things being equal*: the existence of other tendencies is not denied, but their disturbing effect is neglected for a time. The more the issue is thus narrowed, the more exactly can it be handled: but also the less closely does it correspond to real life. Each exact and firm handling of a narrow issue, however, helps towards treating broader issues, in which that narrow issue is contained, more exactly than would otherwise have been possible. With each step more things can be let out of the pound; exact discussions can be made less abstract, realistic discussions can be made less inexact than was possible at an earlier stage.[2]

[1] Compare I. II. 7.

[2] As has been explained in the Preface, pp. vi–ix, this volume is concerned mainly with normal conditions; and these are sometimes described as Statical. But in the opinion of the present writer the problem of normal value belongs to economic Dynamics: partly because Statics is really but a branch of Dynamics, and partly because all suggestions as to economic rest, of which the hypothesis of a Stationary state is the chief, are merely provisional, used only to illustrate particular steps in the argument, and to be thrown aside when that is done.

Fiction of a stationary state.

Our first step towards studying the influences exerted by the element of time on the relations between cost of production and value may well be to consider the famous fiction of the "Stationary state" in which those influences would be but little felt; and to contrast the results which would be found there with those in the modern world.

This state obtains its name from the fact that in it the general conditions of production and consumption, of distribution and exchange remain motionless; but yet it is full of movement; for it is a mode of life. The average age of the population may be stationary; though each individual is growing up from youth towards his prime, or downwards to old age. And the same amount of things per head of the population will have been produced in the same ways by the same classes of people for many generations together; and therefore this supply of the appliances for production will have had full time to be adjusted to the steady demand.

Of course we might assume that in our stationary state every business remained always of the same size, and with the same trade connection. But we need not go so far as that; it will suffice to suppose that firms rise and fall, but that the "representative" firm remains always of about the same size, as does the representative tree of a virgin forest, and that therefore the economies resulting from its own resources are constant: and since the aggregate volume of production is constant, so also are those economies resulting from subsidiary industries in the neighbourhood, etc. [That is, its internal and external economies are both constant. The price, the expectation of which just induced persons to enter the trade, must be sufficient to cover in the long run the cost of building up a trade connection; and a proportionate share of it must be added in to make up the total cost of production.]

In a stationary state the doctrine of value would be simple.

In a stationary state then the plain rule would be that cost of production governs value. Each effect would be attributable mainly to one cause; there would not be much complex action and reaction between cause and effect. Each element of cost would be governed by "natural" laws, subject to some control from fixed custom. There would be no reflex influence of demand; no fundamental difference between the immediate and the later effects of economic causes. There would be no distinction between long-period and short-period normal value, at all events if we supposed that in that monotonous world the harvests themselves were uniform: for the representative firm being always of the same size, and always doing the same class of business to the same extent and in the same

V, v, 3.

way, with no slack times, and no specially busy times, its normal expenses by which the normal supply price is governed would be always the same. The demand lists of prices would always be the same, and so would the supply lists; and normal price would never vary.

But in the real world a simple doctrine of value is worse than none.

But nothing of this is true in the world in which we live. Here every economic force is constantly changing its action, under the influence of other forces which are acting around it. Here changes in the volume of production, in its methods, and in its cost are ever mutually modifying one another; they are always affecting and being affected by the character and the extent of demand. Further all these mutual influences take time to work themselves out, and, as a rule, no two influences move at equal pace. In this world therefore every plain and simple doctrine as to the relations between cost of production, demand and value is necessarily false: and the greater the appearance of lucidity which is given to it by skilful exposition, the more mischievous it is. A man is likely to be a better economist if he trusts to his common sense, and practical instincts, than if he professes to study the theory of value and is resolved to find it easy.

Modifications of the fiction of a stationary state bring us nearer to real life and help to break up a complex problem.

§ 3. The Stationary state has just been taken to be one in which population is stationary. But nearly all its distinctive features may be exhibited in a place where population and wealth are both growing, provided they are growing at about the same rate, and there is no scarcity of land: and provided also the methods of production and the conditions of trade change but little; and above all, where the character of man himself is a constant quantity. For in such a state by far the most important conditions of production and consumption, of exchange and distribution will remain of the same quality, and in the same general relations to one another, though they are all increasing in volume.[1]

This relaxation of the rigid bonds of a purely stationary state brings us one step nearer to the actual conditions of life: and by relaxing them still further we get nearer still. We thus approach by gradual steps towards the difficult problem of the interaction of countless economic causes. In the stationary state all the conditions of production and consumption are reduced to rest: but less violent assumptions are made by what is, not quite accurately, called the *statical* method. By that method we fix our minds on some central point: we suppose it for the time to be reduced to a *stationary* state; and we then study in relation to it the forces

[1] See below, V. xi. 6; and compare Keynes, *Scope and Method of Political Economy*, vi. 2.

that affect the things by which it is surrounded, and any tendency there may be to equilibrium of these forces. A number of these partial studies may lead the way towards a solution of problems too difficult to be grasped at one effort.[1]

V, v, 4.

Illustration from the fishing trade.

§ 4. We may roughly classify problems connected with fishing industries as those which are affected by very quick changes, such as uncertainties of the weather; or by changes of moderate length, such as the increased demand for fish caused by the scarcity of meat during the year or two following a cattle plague; or lastly, we may consider the great increase during a whole generation of the demand for fish which might result from the rapid growth of a high-strung artisan population making little use of their muscles.

Day to day oscillations.

The day to day oscillations of the price of fish resulting from uncertainties of the weather, etc., are governed by practically the same causes in modern England as in the supposed stationary state. The changes in the general economic conditions around us are quick; but they are not quick enough to affect perceptibly the short-period normal level about which the price fluctuates from day to day: and they may be neglected [impounded in *cæteris paribus*] during a study of such fluctuations.

An increase in the amount demanded generally raises short-period supply price;

Let us then pass on; and suppose a great increase in the general demand for fish, such for instance as might arise from a disease affecting farm stock, by which meat was made a dear and dangerous food for several years together. We now impound fluctuations due to the weather in *cæteris paribus*, and neglect them provisionally: they are so quick that they speedily obliterate one another, and are therefore not important for problems of this class. And for the opposite reason we neglect variations in the numbers of those who are brought up as seafaring men: for these variations are too slow to produce much effect in the year or two during which the scarcity of meat lasts. Having impounded these two sets for the time, we give our full attention to such influences as the inducements which good fishing wages will offer to sailors to stay in their fishing homes for a year or two, instead of applying for work on a ship. We consider what old fishing boats, and even vessels that were not specially made for fishing, can be adapted and sent to fish for a year or two. The normal price for any given daily supply of fish, which we are now seeking, is the price which will *quickly* call into the fishing trade capital and labour enough to obtain that supply in a day's fishing of average good fortune; the influence which the price of fish will have upon capital and labour available in the fishing trade

[1] Compare the Preface and Appendix H. 4.

V, v, 4.

being governed by rather narrow causes such as these. This new level about which the price oscillates during these years of exceptionally great demand, will obviously be higher than before. Here we see an illustration of the almost universal law that the term Normal being taken to refer to a short period of time *an increase in the amount demanded raises the normal supply* price. This law is almost universal even as regards industries which in long periods follow the tendency to increasing return.[1]

but not necessarily long-period supply price.

But if we turn to consider the normal supply price with reference to a *long period* of time, we shall find that it is governed by a different set of causes, and with different results. For suppose that the disuse of meat causes a permanent distaste for it, and that an increased demand for fish continues long enough to enable the forces by which its supply is governed to work out their action fully (of course oscillation from day to day and from year to year would continue: but we may leave them on one side). The source of supply in the sea might perhaps show signs of exhaustion, and the fishermen might have to resort to more distant coasts and to deeper waters, Nature giving a Diminishing Return to the increased application of capital and labour of a given order of efficiency. On the other hand, those might turn out to be right who think that man is responsible for but a very small part of the destruction of fish that is constantly going on; and in that case a boat starting with equally good appliances and an equally efficient crew would be likely to get nearly as good a haul after the increase in the total volume of the fishing trade as before. In any case the normal cost of equipping a good boat with an efficient crew would certainly not be higher, and probably be a little lower after the trade had settled down to its now increased dimensions than before. For since fishermen require only trained aptitudes, and not any exceptional natural qualities, their number could be increased in less than a generation to almost any extent that was necessary to meet the demand; while the industries connected with building boats, making nets, etc. being now on a larger scale would be organized more thoroughly and economically. If therefore the waters of the sea showed no signs of depletion of fish, an increased supply could be produced at a lower price after a time sufficiently long to enable the normal action of economic causes to work itself out: and, the term Normal being taken to refer to a long period of time, the normal price of fish would decrease with an increase in demand.[2]

[1] See V, xi, 1.

[2] Tooke (*History of Prices*, Vol. I. p. 104) tells us: "There are particular articles of which the demand for naval and military purposes forms so large a proportion to

Average and normal prices.

Thus we may emphasize the distinction already made between average price and normal price. An average may be taken of the prices of any set of sales extending over a day or a week or a year or any other time: or it may be the average of sales at any time in many markets; or it may be the average of many such averages. But the conditions which are normal to any one set of sales are not likely to be exactly those which are normal to the others: and therefore it is only by accident that an average price will be a normal price; that is, the price which any one set of conditions tends to produce. In a stationary state alone, as we have just seen, the term normal always means the same thing: there, but only there, "average price" and "normal price" are convertible terms.[1]

Restatement of the main result.

§ 5. To go over the ground in another way. Market values are governed by the relation of demand to stocks actually in the market; with more or less reference to "future" supplies, and not without some influence of trade combinations.

Nature of marginal production.

But the current supply is in itself partly due to the action of producers in the past; and this action has been determined on as the result of a comparison of the prices which they expect to get for their goods with the expenses to which they will be put in producing them. The range of expenses of which they take account depends on whether they are merely considering the extra expenses of certain extra production with their existing plant, or are considering whether to lay down new plant for the purpose. In the case, for instance, of an order for a single locomotive, which was discussed a little while ago,[2] the question of readjusting the plant to demand would hardly arise: the main question would be whether more work could conveniently be got out of the existing plant. But in view of an order for a large number of locomotives to be delivered gradually over a series of years, some extension of plant "specially" made for

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the total supply, that no diminution of consumption by individuals can keep pace with the immediate increase of demand by government; and consequently, the breaking out of a war tends to raise the price of such articles to a great relative height. But even of such articles, if the consumption were not on a progressive scale of increase so rapid that the supply, with all the encouragement of a relatively high price, could not keep pace with the demand, the tendency is (supposing no impediment, natural or artificial, to production or importation) to occasion such an increase of quantity, as to reduce the price to nearly the same level as that from which it had advanced. And accordingly it will be observed, by reference to the table of prices, that salt-petre, hemp, iron, etc., after advancing very considerably under the influence of a greatly extended demand for military and naval purposes, tended downwards again whenever that demand was not progressively and rapidly increasing." Thus a continuously progressive increase in demand may raise the supply price of a thing even for several years together; though a steady increase of demand for that thing, at a rate not too great for supply to keep pace with it, would lower price.

[1] V. III. 6. The distinction will be yet further discussed in V. XII. and Appendix H. See also Keynes, *Scope and Method of Political Economy*, ch. VII.

[2] Pp. 300–1.

V, v, 5. the purpose, and therefore truly to be regarded as prime marginal costs would almost certainly be carefully considered.

Whether the new production for which there appears to be a market be large or small, the general rule will be that unless the price is expected to be very low that portion of the supply which can be most easily produced, with but small prime costs, will be produced: that portion is not likely to be on the margin of production. As the expectations of price improve, an increased part of the production will yield a considerable surplus above prime costs, and the margin of production will be pushed outwards. Every increase in the price expected will, as a rule, induce some people who would not otherwise have produced anything, to produce a little; and those, who have produced something for the lower price, will produce more for the higher price. That part of their production with regard to which such persons are on the margin of doubt as to whether it is worth while for them to produce it at the price, is to be included together with that of the persons who are in doubt whether to produce at all; the two together constitute the marginal production at that price. The producers, who are in doubt whether to produce anything at all, may be said to lie altogether on the margin of production (or, if they are agriculturists, on the margin of cultivation). But as a rule they are very few in number, and their action is less important than that of those who would in any case produce something.

The general drift of the term Normal supply price for short and long periods.

The general drift of the term normal supply price is always the same whether the period to which it refers is short or long; but there are great differences in detail. In every case reference is made to a certain given rate of aggregate production; that is, to the production of a certain aggregate amount daily or annually. In every case the price is that the expectation of which is sufficient and only just sufficient to make it worth while for people to set themselves to produce that aggregate amount; in every case the cost of production is marginal; that is, it is the cost of production of those goods which are on the margin of not being produced at all, and which would not be produced if the price to be got for them were expected to be lower. But the causes which determine this margin vary with the length of the period under consideration. For short periods people take the stock of appliances for production as practically fixed; and they are governed by their expectations of demand in considering how actively they shall set themselves to work those appliances. In long periods they set themselves to adjust the flow of these appliances to their expectations of demand for the goods

which the appliances help to produce. Let us examine this difference closely. V, v, 6.

§ 6. The immediate effect of the expectation of a high price is to cause people to bring into active work all their appliances of production, and to work them full time and perhaps overtime. The supply price is then the money cost of production of that part of the produce which forces the undertaker to hire such inefficient labour (perhaps tired by working overtime) at so high a price, and to put himself and others to so much strain and inconvenience that he is on the margin of doubt whether it is worth his while to do it or not. The immediate effect of the expectation of a low price is to throw many appliances for production out of work, and slacken the work of others; and if the producers had no fear of spoiling their markets, it would be worth their while to produce for a time for any price that covered the prime costs of production and rewarded them for their own trouble.

For short periods the stock of appliances of production are practically fixed, but their employment varies with demand.

But, as it is, they generally hold out for a higher price; each man fears to spoil his chance of getting a better price later on from his own customers; or, if he produces for a large and open market, he is more or less in fear of incurring the resentment of other producers, should he sell needlessly at a price that spoils the common market for all. The marginal production in this case is the production of those whom a little further fall of price would cause, either from a regard to their own interest or by formal or informal agreement with other producers, to suspend production for fear of further spoiling the market. The price which, for these reasons, producers are just on the point of refusing, is the true marginal supply price for short periods. It is nearly always above, and generally very much above the special or prime cost for raw materials, labour and wear-and-tear of plant, which is immediately and directly involved by getting a little further use out of appliances which are not fully employed. This point needs further study.

In a trade which uses very expensive plant, the prime cost of goods is but a small part of their total cost; and an order at much less than their normal price may leave a large surplus above their prime cost. But if producers accept such orders in their anxiety to prevent their plant from being idle, they glut the market and tend to prevent prices from reviving. In fact however they seldom pursue this policy constantly and without moderation. If they did, they might ruin many of those in the trade, themselves perhaps among the number; and in that case a revival of demand would find little response in supply, and would raise violently the prices of

Where there is much fixed capital, prices can fall far below their normal level without reaching special or prime cost;

V, v, 6.

the goods produced by the trade. Extreme variations of this kind are in the long run beneficial neither to producers nor to consumers; and general opinion is not altogether hostile to that code of trade morality which condemns the action of anyone who "spoils the market" by being too ready to accept a price that does little more than cover the prime cost of his goods, and allows but little on account of his general expenses.[1]

For example, if at any time the prime cost, in the narrowest sense of the word, of a bale of cloth is £100; and if another £100 are needed to make the cloth pay its due share of the general expenses of the establishment, including normal profits to its owners, then the practically effective supply price is perhaps not very likely to fall below £150 under ordinary conditions, even for short periods; though of course a few special bargains may be made at lower prices without much affecting the general market.

but such a fall is opposed by many causes, mostly indirect.

Thus, although nothing but prime cost enters *necessarily and directly* into the supply price for short periods, it is yet true that supplementary costs also exert some influence indirectly. A producer does not often isolate the cost of each separate small parcel of his output; he is apt to treat a considerable part of it, even in some cases the whole of it, more or less as a unit. He inquires whether it is worth his while to add a certain new line to his present undertakings, whether it is worth while to introduce a new machine and so on. He treats the extra output that would result from the change more or less as a unit beforehand; and afterwards he quotes the lowest prices, which he is willing to accept, with more or less reference to the whole cost of that extra output regarded as a unit.

The marginal unit is a whole process of production rather than a parcel of goods.

In other words he regards an increase in his processes of production, rather than an individual parcel of his products, as a unit in most of his transactions. And the analytical economist must follow suit, if he would keep in close touch with actual conditions. These considerations tend to blur the sharpness of outline of the theory of value: but they do not affect its substance.[2]

To sum up then as regards short periods. The supply of

[1] Where there is a strong combination, tacit or overt, producers may sometimes regulate the price for a considerable time together with very little reference to cost of production. And if the leaders in that combination were those who had the best facilities for production, it might be said, in apparent though not in real contradiction to Ricardo's doctrines, that the price was governed by that part of the supply which was most easily produced. But as a fact, those producers whose finances are weakest, and who are bound to go on producing to escape failure, often impose their policy on the rest of the combination: insomuch that it is a common saying, both in America and England, that the weakest members of a combination are frequently its rulers.

[2] This general description may suffice for most purposes: but in chapter XI. there will be found a more detailed study of that extremely complex notion, a marginal

specialized skill and ability, of suitable machinery and other material capital, and of the appropriate industrial organization has not time to be fully adapted to demand; but the producers have to adjust their supply to the demand as best they can with the appliances already at their disposal. On the one hand there is not time materially to increase those appliances if the supply of them is deficient; and on the other, if the supply is excessive, some of them must remain imperfectly employed, since there is not time for the supply to be much reduced by gradual decay, and by conversion to other uses. Variations in the particular income derived from them do not *for the time* affect perceptibly the supply; and do not directly affect the price of the commodities produced by them. The income is a surplus of total receipts over prime cost; [that is, it has something of the nature of a rent as will be seen more clearly in chapter VIII.]. But unless it is sufficient to cover in the long run a fair share of the general costs of the business, production will gradually fall off. In this way a controlling influence over the relatively quick movements of supply price during short periods is exercised by causes in the background which range over a long period; and the fear of "spoiling the market" often makes those causes act more promptly than they otherwise would.

General conclusions as to short periods.

§ 7. In long periods on the other hand all investments of capital and effort in providing the material plant and the organization of a business, and in acquiring trade knowledge and specialized ability, have time to be adjusted to the incomes which are expected to be earned by them: and the estimates of those incomes therefore directly govern supply, and are the true long-period normal supply price of the commodities produced.

In long periods the flow of appliances for production is adjusted to the demand for the products of those appliances.

A great part of the capital invested in a business is generally spent on building up its internal organization and its external trade connections. If the business does not prosper all that capital is lost, even though its material plans may realize a considerable part of its original cost. And anyone proposing to start a new business in any trade must reckon for the chance of this loss. If himself a man of normal capacity for that class of work, he may look forward ere long to his business being a representative one, in the sense in which we have used this term, with its fair share of the economies of production on a large scale. If the net earnings of such a representative business seem likely to be greater than he

increment in the processes of production by a representative firm; together with a fuller explanation of the necessity of referring our reasonings to the circumstances of a representative firm, especially when we are considering industries which show a tendency to increasing return.

V, v, 8.

could get by similar investments in other trades to which he has access, he will choose this trade. Thus that investment of capital in a trade, on which the price of the commodity produced by it depends in the long run, is governed by estimates on the one hand of the outgoings required to build up and to work a representative firm, and on the other of the incomings, spread over a long period of time, to be got by such a price.

At any particular moment some businesses will be rising and others falling: but when we are taking a broad view of the causes which govern normal supply price, we need not trouble ourselves with these eddies on the surface of the great tide. Any particular increase of production may be due to some new manufacturer who is struggling against difficulties, working with insufficient capital, and enduring great privations in the hope that he may gradually build up a good business. Or it may be due to some wealthy firm which by enlarging its premises is enabled to attain new economies, and thus obtain a larger output at a lower proportionate cost: and, as this additional output will be small relatively to the aggregate volume of production in the trade, it will not much lower the price; so that the firm will reap great gains from its successful adaptation to its surroundings. But while these variations are occurring in the fortunes of individual businesses, there may be a steady tendency of the long-period normal supply price to diminish, as a direct consequence of an increase in the aggregate volume of production.

There is no sharp division between long and short periods.

§ 8. Of course there is no hard and sharp line of division between "long" and "short" periods. Nature has drawn no such lines in the economic conditions of actual life; and in dealing with practical problems they are not wanted. Just as we contrast civilized with uncivilized races, and establish many general propositions about either group, though no hard and fast division can be drawn between the two; so we contrast long and short periods without attempting any rigid demarcation between them. If it is necessary for the purposes of any particular argument to divide one case sharply from the other, it can be done by a special interpretation clause: but the occasions on which this is necessary are neither frequent nor important.

Classification of problems of value by the periods to which they refer.

Four classes stand out. In each, price is governed by the relations between demand and supply. As regards *market* prices, Supply is taken to mean the stock of the commodity in question which is on hand, or at all events "in sight." As regards *normal* prices, when the term Normal is taken to relate to *short* periods of a few months or a year, Supply means broadly what can be produced for the price in question with the existing stock of plant, personal and

impersonal, in the given time. As regards *normal* prices, when the term Normal is to refer to *long* periods of several years, Supply means what can be produced by plant, which itself can be remuneratively produced and applied within the given time; while lastly, there are very gradual or *Secular* movements of normal price, caused by the gradual growth of knowledge, of population and of capital, and the changing conditions of demand and supply from one generation to another.[1] V, v, 8.

The remainder of the present volume is chiefly concerned with the third of the above classes: that is, with the normal relations of wages, profits, prices, etc., for rather long periods. But occasionally account has to be taken of changes that extend over very many years; and one chapter, Book VI. ch. XII., is given up to "The Influence of Progress on Value," that is, to the study of *secular* changes of value.

[1] Compare the first section of this chapter. Of course the periods required to adapt the several factors of production to the demand may be very different; the number of skilled compositors, for instance, cannot be increased nearly as fast as the supply of type and printing-presses. And this cause alone would prevent any rigid division being made between long and short periods. But in fact a theoretically perfect long period must give time enough to enable not only the factors of production of the commodity to be adjusted to the demand, but also the factors of production of those factors of production to be adjusted and so on; and this, when carried to its logical consequences, will be found to involve the supposition of a stationary state of industry, in which the requirements of a future age can be anticipated an indefinite time beforehand. Some such assumption is indeed unconsciously implied in many popular renderings of Ricardo's theory of value, if not in his own versions of it; and it is to this cause more than any other that we must attribute that simplicity and sharpness of outline, from which the economic doctrines in fashion in the first half of this century derived some of their seductive charm, as well as most of whatever tendency they may have to lead to false practical conclusions.

Relatively short and long period problems go generally on similar lines. In both use is made of that paramount device, the partial or total isolation for special study of some set of relations. In both opportunity is gained for analysing and comparing similar episodes, and making them throw light upon one another; and for ordering and co-ordinating facts which are suggestive in their similarities, and are still more suggestive in the differences that peer out through their similarities. But there is a broad distinction between the two cases. In the relatively short-period problem no great violence is needed for the assumption that the forces not specially under consideration may be taken for the time to be inactive. But violence is required for keeping broad forces in the pound of *Cœteris Paribus* during, say, a whole generation, on the ground that they have only an indirect bearing on the question in hand. For even indirect influences may produce great effects in the course of a generation, if they happen to act cumulatively; and it is not safe to ignore them even provisionally in a practical problem without special study. Thus the uses of the statical method in problems relating to very long periods are dangerous; care and forethought and self-restraint are needed at every step. The difficulties and risks of the task reach their highest point in connection with industries which conform to the law of Increasing Return; and it is just in connection with those industries that the most alluring applications of the method are to be found. We must postpone these questions to chapter XII. and Appendix H.

But an answer may be given here to the objection that since "the economic world is subject to continual changes, and is becoming more complex, . . . the longer the run the more hopeless the rectification": so that to speak of that position which value tends to reach in the long run is to treat "variables as constants." (Devas, *Political Economy*, Book IV. ch. V.) It is true that we do treat variables *provisionally* as constants. But it is also true that this is the only method by which science has ever made any great progress in dealing with complex and changeful matter, whether in the physical or moral world. See above V. v. 2.

CHAPTER VI

JOINT AND COMPOSITE DEMAND. JOINT AND COMPOSITE SUPPLY

§ 1. Bread satisfies man's wants directly: and the demand for it is said to be direct. But a flour mill and an oven satisfy wants only indirectly, by helping to make bread, etc., and the demand for them is said to be indirect. More generally:—

Indirect or derived demand.

The demand for raw materials and other means of production is *indirect* and is *derived* from the direct demand for those directly serviceable products which they help to produce.

The services of the flour mill and the oven are joined together in the ultimate product, bread: the demand for them is therefore called a joint demand. Again, hops and malt are complementary to one another; and are joined together in the common destination of ale: and so on. Thus the demand for each of several complementary things is derived from the services which they *jointly* render in the production of some ultimate product, as for instance a loaf of bread, a cask of ale. In other words there is a *joint demand* for the services which any of these things render in helping to produce a thing which satisfies wants directly and for which there is therefore a direct demand: the direct demand for the finished product is in effect split up into many derived demands for the things used in producing it.[1]

Joint demand.

To take another illustration, the direct demand for houses gives rise to a joint demand for the labour of all the various building trades, and for bricks, stone, wood, etc. which are factors of production of building work of all kinds, or as we may say for shortness, of new houses. The demand for any one of these, as for instance the labour of plasterers, is only an indirect or derived demand.

Let us pursue this last illustration with reference to a class of

[1] Compare III. iii. 6. It will be recollected that the things in a form ready for immediate use have been called *goods of the first order*, or *consumers' goods*; and that things used as factors of production of other goods have been called *producers' goods*, or *goods of the second and higher orders* or *intermediate* goods: also that it is difficult to say when goods are really finished; that many things are commonly treated as finished consumers' goods before they are really ready for consumption, *e.g.* flour. See II. iii. 1. The vagueness of the notion of *instrumental goods*, regarded as things the value of which is derived from that of their products, is indicated in II. iv. 13.

events that are of frequent occurrence in the labour market; the period over which the disturbance extends being short, and the causes of which we have to take account as readjusting demand and supply being only such as are able to operate within that short period.

Illustration taken from a labour dispute in the building trade.

This case has important practical bearings, which give it a special claim on our attention; but we should notice that, referring as it does to short periods, it is an exception to our general rule of selecting illustrations in this and the neighbouring chapters from cases in which there is time enough for the full long-period action of the forces of supply to be developed.

Let us then suppose that the supply and demand for building being in equilibrium, there is a strike on the part of one group of workers, say the plasterers, or that there is some other disturbance to the supply of plasterers' labour. In order to isolate and make a separate study of the demand for that factor, we suppose firstly that the general conditions of the demand for new houses remain unchanged (that is, that the demand schedule for new houses remains valid); and secondly we assume that there is no change in the general conditions of supply of the other factors, two of which are of course the business faculties and the business organizations of the master builders; (that is, we assume that their lists of supply prices also remain valid). Then a temporary check to the supply of plasterers' labour will cause a proportionate check to the amount of building: the demand price for the diminished number of houses will be a little higher than before; and the supply prices for the other factors of production will not be greater than before.[1] Thus new houses can now be sold at prices which exceed by a good margin the sum of the prices at which these other requisites for the production of houses can be bought; and that margin gives the limit to the possible rise of the price that will be offered for plasterers' labour, on the supposition that plasterers' labour is indispensable. The different amounts of this margin, corresponding to different checks to the supply of plasterers' labour, are governed by the general rule that:—The price that will be offered for any thing used in producing a commodity is, for each separate amount for the commodity, limited by the excess of the price at which that amount of the commodity can find purchasers, over the sum of the prices at which the corresponding supplies of the other things needed for making it will be forthcoming.

Law of derived demand.

[1] This is at any rate true under all ordinary conditions: there will be less extra charges for overtime; and the price of the labour of carpenters, bricklayers and others is likely rather to go down than to go up, and the same is true of bricks and other building materials.

V, VI, 1.

To use technical terms, the demand schedule for any factor of production of a commodity can be *derived* from that for the commodity by subtracting from the demand price of each separate amount of the commodity the sum of the supply prices for corresponding amounts of the other factors.[1]

[1] The broad account given in the text may suffice for most purposes; and the general reader should perhaps omit the remaining footnotes to this chapter.

It must be remembered that this Derived schedule has no validity except on the suppositions that we are isolating this one factor for separate study; that its own conditions of supply are disturbed; that there is at the time no independent disturbance affecting any other element in the problem; and that therefore in the case of each of the other factors of production the selling price may be taken to coincide always with the supply price.

In illustrating this by a diagram, it will be well, for the sake of shortness of wording, to divide the expenses of production of a commodity into the supply prices of two things of which it is made; let us then regard the supply price of a knife as the sum of the supply prices of its blade and handle, and neglect the expense of putting the two together. Let ss' be the supply curve for handles and SS' that for knives; so that M being any point on Ox, and MqQ being drawn vertically to cut ss' in q and SS' in Q, Mq is the supply price for OM handles, qQ is the supply price for OM blades and MQ the supply price for OM knives. Let DD' the demand curve for knives cut SS' in A, and AaB be drawn vertically as in the figure. Then in equilibrium OB knives are sold at a price BA of which Ba goes for the handle and aA for the blade.

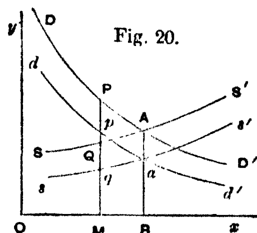


Fig. 20.

(In this illustration we may suppose that sufficient time is allowed to enable the forces which govern supply price to work themselves out fully; and we are at liberty therefore to make our supply curves inclined negatively. This change will not affect the argument; but on the whole it is best to take our typical instance with the supply curve inclined positively.)

Now let us suppose that we want to isolate for separate study the demand for knife handles. Accordingly we suppose that the demand for knives and the supply of blades conform to the laws indicated by their respective curves: also that the supply curve for handles still remains in force and represents the circumstances of normal supply of handles, although the supply of handles is temporarily disturbed. Let MQ cut DD' in P, then MP is the demand price for OM knives and Qq is the supply price for OM blades. Take a point p in MP such that Pp is equal to Qq, and therefore Mp is the excess of MP over Qq; then Mp is the demand price for OM handles. Let dd' be the locus of p obtained by giving M succesive positions along Ox and finding the corresponding positions of p; then dd' is the derived demand curve for handles. Of course it passes through a. We may now neglect all the rest of the figure except the curves dd', ss'; and regard them as representing the relations of demand for and supply of handles, other things being equal, that is to say, in the absence of any disturbing cause which affects the law of supply of blades and the law of demand for knives. Ba is then the equilibrium price of handles, about which the market price oscillates, in the manner investigated in the preceding chapter, under the influence of demand and supply, of which the schedules are represented by dd' and ss'. It has already been remarked that the ordinary demand and supply curves have no practical value except in the immediate neighbourhood of the point of equilibrium. And the same remark applies with even greater force to the equation of derived demand.

[Since $Mp - Mq = MP - MQ$; therefore A being a point of stable equilibrium, the equilibrium at a also is stable. But this statement needs to be somewhat qualified if the supply curves are negatively inclined: see Appendix H.]

In the illustration that has just been worked out the unit of each of the factors remains unchanged whatever be the amount of the commodity produced; for one blade and one handle are always required for each knife; but when a change in the amount of the commodity produced occasions a change in the amount of each factor that is required for the production of a unit of the commodity, the demand and supply curves for the factor got by the above process are not expressed in terms of fixed units of the factor. They must be translated back into fixed units before they are available for general use. (See Mathematical Note XIV *bis*.)

§ 2. When however we come to apply this theory to the actual conditions of life, it will be important to remember that if the supply of one factor is disturbed, the supply of others is likely to be disturbed also. In particular, when the factor of which the supply is disturbed is one class of labour, as that of the plasterers, the employers' earnings generally act as a buffer. That is to say, the loss falls in the first instance on them; but by discharging some of their workmen and lowering the wages of others, they ultimately distribute a great part of it among the other factors of production. The details of the process by which this is effected are various, and depend on the action of trade combinations, on the higgling and bargaining of the market, and on other causes with which we are not just at present concerned.

Cautions as to the practical applications of the theory.

Let us inquire what are the conditions, under which a check to the supply of a thing that is wanted not for direct use, but as a factor of production of some commodity, may cause a very great rise in its price. The first condition is that the factor itself should be essential, or nearly essential to the production of the commodity, no good substitute being available at a moderate price.

Conditions under which a check to supply may raise much the price of a requisite of production.

The second condition is that the commodity in the production of which it is a necessary factor, should be one for which the demand is stiff and inelastic; so that a check to its supply will cause consumers to offer a much increased price for it rather than go without it; and this of course includes the condition that no good substitutes for the commodity are available at a price but little higher than its equilibrium price. If the check to house building raises the price of houses very much, builders, anxious to secure the exceptional profits, will bid against one another for such plasterers' labour as there is in the market.[1]

The third condition is that only a small part of the expenses of production of the commodity should consist of the price of this factor. Since the plasterers' wages are but a small part of the total expenses of building a house, a rise of even 50 per cent. in them would add but a very small percentage to the expenses of production of a house and would check demand but little.[2]

The fourth condition is that even a small check to the amount

[1] We have to inquire under what conditions the ratio pM to aB will be the greatest, pM being the demand price for the factor in question corresponding to a supply reduced from OB to OM, that is reduced by the given amount BM The second condition is that PM should be large; and since the elasticity of demand is measured by the ratio which BM bears to the excess of PM over AB, the greater PM is, the smaller, other things being equal, is the elasticity of demand.

[2] The third condition is that when PM exceeds AB in a given ratio, pM shall be caused to exceed Ba in a large ratio: and other things being equal, that requires Ba to be but a small part of BA.

V, VI, 2. demanded should cause a considerable fall in the supply prices of other factors of production; as that will increase the margin available for paying a high price for this one.[1] If, for instance, bricklayers and other classes of workmen, or the employers themselves cannot easily find other things to do, and cannot afford to remain idle, they may be willing to work for much lower earnings than before, and this will increase the margin available for paying higher wages to plasterers. These four conditions are independent, and the effects of the last three are cumulative.

Moderating influence of the principle of substitution,

The rise in plasterers' wages would be checked if it were possible either to avoid the use of plaster, or to get the work done tolerably well and at a moderate price by people outside the plasterers' trade: the tyranny, which one factor of production of a commodity might in some cases exercise over the other factors through the action of derived demand, is tempered by the principle of substitution.[2]

and of the power of modifying the proportions which the several factors of production of a commodity bear to one another.

Again, an increased difficulty in obtaining one of the factors of a finished commodity can often be met by modifying the character of the finished product. Some plasterers' labour may be indispensable; but people are often in doubt how much plaster work it is worth while to have in their houses, and if there is a rise in its price they will have less of it. The intensity of the satisfaction of which they would be deprived if they had a little less of it, is its marginal utility; the price which they are just willing to pay in order to have it, is the true demand price for plasterers' work up to the amount which is being used.

So again there is a joint demand for malt and hops in ale. But their proportions can be varied. A higher price can be got for an ale which differs from others only in containing more hops; and this excess price represents the demand for hops.[3]

The relations between plasterers, bricklayers, etc., are representative of much that is both instructive and romantic in the history of alliances and conflicts between trades-unions in allied trades. But the most numerous instances of joint demand are those of the demand for a raw material and the operatives who work it up; as

[1] That is, if Qq had been smaller than it is, Pp would have been smaller and Mp would have been larger. See also Mathematical Note XV.

[2] It is shown in Böhm-Bawerk's excellent *Grundzüge der Theorie des wirtschaftlichen Güterwerts* (*Jahrbuch für Nationalökonomie und Statistik*, vol. XIII. p. 59) that if all but one of the factors of production of a commodity have available substitutes in unlimited supply, by which their own price is rigidly fixed, the derived demand price for the remaining factor will be the excess of the demand price for the finished product over the sum of the supply prices thus fixed for the remaining factors. This is an interesting special case of the law given in the text.

[3] See Mathematical Note XVI.

for instance cotton or jute or iron or copper, and those who work up these several materials. Again, the relative prices of different articles of food vary a good deal with the supply of skilled cooks' labour: thus, for instance many kinds of meat and many parts of vegetables which are almost valueless in America, where skilled cooks are rare and expensive, have a good value in France, where the art of cooking is widely diffused. V, VI, 3, 4.

Composite or aggregate demand.

§ 3. We have already [1] discussed the way in which the aggregate demand for any commodity is compounded of the demands of the different groups of people who may need it. But we now may extend this notion of *composite demand* to requisites of production which are needed by several groups of producers.

Rival demands.

Nearly every raw material and nearly every kind of labour is applied in many different branches of industry, and contributes to the production of a great variety of commodities. Each of these commodities has its own direct demand; and from that the derived demand for any of the things used in making it can be found, and the thing is "distributed between its various uses" in the manner which we have already discussed.[2] The various uses are rivals, or competitors with one another; and the corresponding derived demands are *rival* or *competitive demands* relatively to one another. But in relation to the supply of the product, they co-operate with one another; being "compounded" into the total demand that carries off the supply: in just the same way as the partial demands of several classes of society for a finished commodity are aggregated, or compounded together into the total demand for it.[3]

Joint supply.

§ 4. We may now pass to consider the case of *joint products*: *i.e.* of things which cannot easily be produced separately; but are joined in a common origin, and may therefore be said to have a

[1] See above, III. iv. 2, 4. [2] See III. v.

[3] Thus, let a factor of production have three uses. Let d_1d_1' be the demand curve for it in its first use. From N any point on Oy draw Np_1 horizontally to cut d_1d_1' in p_1; then Np_1 is the amount that is demanded for the first use at price ON. Produce Np_1 to p_2, and further on to P making p_1p_2 and p_2P of such lengths as to represent the amounts of the factor demanded at price ON for the second and third uses respectively. As N moves along Oy let p_2 trace out the curve d_2d_2' and let P trace out the curve DD'. Thus d_2d_2' would be the demand curve for the factor if it had only its first and second uses. DD' is its demand curve for all three uses. It is immaterial in what order we take the several uses. In the case represented, the demand for the second use begins at a lower price and that for the third use begins at a higher price than does the demand for the first use. (See Mathematical Note XVII.)

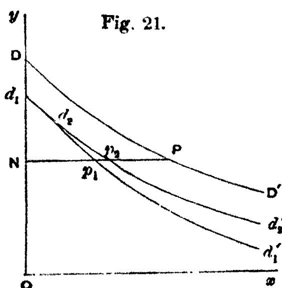


Fig. 21.

V, vi, 4. *joint supply*, such as beef and hides, or wheat and straw.[1] This case corresponds to that of things which have a joint demand, and it may be discussed almost in the same words, by merely substituting "demand" for "supply," and *vice versâ*. And there is a joint demand for things joined in a common destination: so there is a joint supply of things which have a common origin. The single supply of the common origin is split up into so many derived supplies of the things that proceed from it.[2]

For instance, since the repeal of the Corn Laws much of the wheat consumed in England has been imported, of course without any straw. This has caused a scarcity and a consequent rise in the price of straw, and the farmer who grows wheat looks to the straw for a great part of the value of the crop. The value of straw then is high in countries which import wheat, and low in those which export wheat. In the same way the price of mutton in the wool-producing districts of Australia was at one time very low. The wool was exported, the meat had to be consumed at home; and as there was no great demand for it, the price of the wool had to defray almost the whole of the joint expenses of production of the wool and the meat. Afterwards the low price of meat gave a stimulus to the

[1] Professor Dewsnup (*American Economic Review, Supplement*, 1914, p. 89) suggests that things should be described as joint products, when their "total costs of production by a single plant are less than the sum of the costs of their production by separate plants." This definition is less general than that reached at the end of this section; but it is convenient for some special uses.

[2] If it is desired to isolate the relations of demand and supply for a joint product, the derived supply price is found in just the same way as the derived demand price for a factor of production was found in the parallel case of demand. Other things must be assumed to be equal (that is, the supply schedule for the whole process of production must be assumed to remain in force and so must the demand schedule for each of the joint products except that to be isolated). The derived supply price is then found by the rule that it must equal the excess of the supply price for the whole process of production over the sum of the demand prices of all the other joint products; the prices being taken throughout with reference to corresponding amounts.

We may again illustrate by a simple example in which it is assumed that the relative amounts of the two joint products are unalterable. Let SS' be the supply curve for bullocks which yield meat and leather in fixed quantities; dd' the demand curve for their carcases, that is, for the meat derived from them. M being any point on Ox draw Mp vertically to cut dd' in p, and produce it to P so that pP represents the demand price for OM hides. Then MP is the demand price for OM bullocks, and DD' the locus of P is the demand curve for bullocks: it may be called the total demand curve. Let DD' cut SS' in A; and draw AaB as in the figure. Then in equilibrium OB bullocks are produced and sold at price BA of which Ba goes for the carcase and aA for the hide.

Fig. 22.

Let MP cut SS' in Q. From QM cut off Qq equal to Pp; then q is a point on the derived supply curve for carcases. For if we assume that the selling price of OM hides is always equal to the corresponding demand price Pp, it follows that since it costs QM to produce each of OM bullocks there remains a price $QM - Pp$, that is qM, to be borne by each of the OM carcases. Then ss' the locus of q, and dd' are the supply and demand curves for carcases. (See Mathematical Note XVIII.)

industries preserving meat for exportation, and now its price in Australia is higher.

If the proportions of joint products can be modified,

There are very few cases of joint products the cost of production of both of which together is exactly the same as that of one of them alone. So long as any product of a business has a market value, it is almost sure to have devoted to it some special care and expense, which would be diminished, or dispensed with if the demand for that product were to fall very much. Thus, for instance, if straw were valueless, farmers would exert themselves more than they do to make the ear bear as large a proportion as possible to the stalk. Again, the importation of foreign wool has caused English sheep to be adapted by judicious crossing and selection so as to develop heavy weights of good meat at an early age, even at the expense of some deterioration of their wool. It is only when one of two things produced by the same process is valueless, unsaleable, and yet does not involve any expense for its removal, that there is no inducement to attempt to alter its amount; and, it is only in these exceptional cases that we have no means of assigning its separate supply price to each of the joint products. For when it is possible to modify the proportions of these products, we can ascertain what part of the whole expense of the process of production would be saved, by so modifying these proportions as slightly to diminish the amount of one of the joint products without affecting the amounts of the others. That part of the expense is the expense of production of the marginal element of that product; it is the supply price of which we are in search.[1]

their several costs may be discovered.

But these are exceptional cases. It more frequently happens that a business, or even an industry, finds its advantage in using a good deal of the same plant, technical skill, and business organization for several classes of products. In such cases the cost of anything used for several purposes has to be defrayed by its fruits in all of them: but there is seldom any rule of nature to determine either the relative importance of these uses, or the proportions in which the total cost should be distributed among them: much depends on the changing features of markets.[2]

Composite supply.

§ 5. We may pass to the problem of *composite supply* which is analogous to that of composite demand. A demand can often be satisfied by any one of several routes, according to the principle of substitution. These various routes are rivals or competitiors with one another; and the corresponding supplies of commodities are

[1] See Mathematical Note XIX.

[2] A little more is said on this subject in the next chapter: it is discussed fully in the forthcoming work on *Industry and Trade*.

V, vi, 5. *rival*, or *competitive* supplies relatively to one another. But in relation to the demand they co-operate with one another; being "compounded" into the total supply that meets the demand.[1]

If the causes which govern their production are nearly the same, they may for many purposes be treated as one commodity.[2] For instance, beef and mutton may be treated as varieties of one commodity for many purposes; but they must be treated as separate for others, as for instance for those in which the question of the supply of wool enters. Rival things are however often not finished commodities, but factors of production: for instance, there are many rival fibres which are used in making ordinary printing paper. We have just noticed how the fierce action of derived demand for one of several complementary supplies, as *e.g.* for the supply of plasterers' labour, was liable to be moderated, when the demand was met by competitive supply of a rival thing, which could be substituted for it.[3]

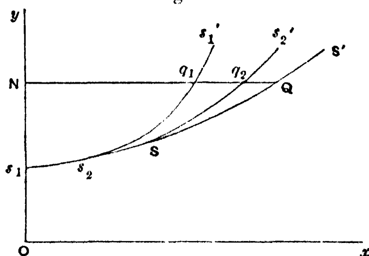
[1] The latter phrase "competing commodities" is used by Prof. Fisher in his brilliant *Mathematical Investigations in the theory of value and prices*, which throw much light on the subjects discussed in the present chapter.

[2] Comp. Jevons, *l. c.* pp. 145, 6. See also above, footnotes on pp. 84, 87.

[3] The want which all the rivals tend to satisfy is met by a composite supply, the total supply at any price being the sum of the partial supplies at that price.

Thus, for instance, N being any point on Oy draw Nq_1q_2Q parallel to Ox such that Nq_1, q_1q_2 and q_2Q are respectively the amounts of the first, second and third of those rivals which can be supplied at the price ON. Then NQ is the total composite supply at that price, and the locus of Q is the total supply curve of the means of satisfying the want in question. Of course the units of the several things which are rivals must be so taken that each of them satisfies the same amount of the want. In the case represented in the figure small quantities of the first rival can be put on the market at a price too low to call forth any supply of the other two, and small quantities of the second at a price too low to call forth any of the third. (See Mathematical Note XX.)

Fig. 23.



Continued rivalry is as a rule possible only when none of the rivals has its supply governed by the law of increasing return. The equilibrium is stable only when none of them is able to drive the others out; and this is the case when all of them conform to the law of diminishing return; because then if one did obtain a temporary advantage and its use increased, its supply price would rise, and then the others would begin to undersell it. But if one of them conformed to the law of increasing return, the rivalry would soon cease; for whenever it happened to gain a temporary advantage over its rivals its increased use would lower its supply price and therefore increase its sale—its supply price would then be further lowered, and so on: thus its advantage over its rivals would be continually increased until it had driven them out of the field. It is true that there are apparent exceptions to this rule; and things which conform to the law of increasing return do sometimes seem to remain for a long time in the field as rivals: such is the case perhaps with different kinds of sewing machines and of electric lights. But in these cases the things do not really satisfy the same wants, they appeal to slightly different needs or tastes; there is still some difference of opinion as to their relative merits; or else perhaps some of them are patented or in some other way have become the monopoly of particular firms. In

§ 6. All the four chief problems which have been discussed in this chapter have some bearing on the causes that govern the value of almost every commodity: and many of the most important cross connections between the values of different commodities are not obvious at first sight.

V, vi, 6.

Instances of intricate relations between the values of different things.

Thus when charcoal was generally used in making iron, the price of leather depended in some measure on that of iron; and the tanners petitioned for the exclusion of foreign iron in order that the demand on the part of English iron smelters for oak charcoal might cause the production of English oak to be kept up, and thus prevent oak bark from becoming dear.[1] This instance may serve to remind us of the way in which an excessive demand for a thing may cause its sources of supply to be destroyed, and thus render scarce any joint products that it may have: for the demand for wood on the part of the ironmakers led to a relentless destruction of many forests in England. Again, an excessive demand for lamb was assigned as a cause of the prevailing scarcity of sheep some years ago; while some argued on the contrary that the better the price to be got for spring lamb sold to the rich, the more profitable would be the production of sheep, and the cheaper would mutton be for the people. The fact is that an increase of demand may have opposite effects according as it does or does not act so suddenly as to prevent producers from adapting their action to it.

Again, the development of railways and other means of communication for the benefit of one trade, as for instance wheat growing in some parts of America and silver mining in others, greatly lowers some of the chief expenses of production of nearly every other product of those districts. Again, the prices of soda, and bleaching materials and other products of industries, the chief raw material of which is salt, move up and down relatively to one another with almost every improvement in the various processes which are used in those industries; and every change in those prices affects the prices of many other goods, for the various products of the salt industries are more or less important factors in many branches of manufacture.

Again, cotton and cotton-seed oil are joint products, and the recent fall in the price of cotton is largely due to the improved manufacture and uses of cotton-seed oil: and further, as the history

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such cases custom and the force of advertising may keep many rivals in the field for a long time; particularly if the producers of those things which are really the best in proportion to their expenses of production are not able effectively to advertise and push their wares by travellers and other agencies.

[1] Toynbee (*Industrial Revolution*, p. 80).

V, VI, 6. of the cotton famine shows, the price of cotton largely affects that of wool, linen and other things of its own class; while cotton-seed oil is ever opening up new rivalries with things of its own class. Again, many new uses have been found for straw in manufacture; and these inventions are giving value to straw that used to be burnt in the West of America, and tend to hinder the rise in the marginal cost of producing wheat.[1]

[1] Again, since sheep and oxen compete for the use of land, leather and cloth compete in indirect demand for the use of a factor of production. But also in the upholsterer's shop they compete as supplying means for meeting the same want. There is thus a composite demand on the part of upholsterer and shoemaker for leather; and also for cloth when the upper part of a shoe is made of cloth: the shoe offers a joint demand for cloth and leather, they offering complementary supplies: and so on, in endless complications. See Mathematical Note XXI. The Austrian doctrine of "imputed value" has something in common with that of derived value given in this chapter. Whichever phrase be used, it is important that we should recognize the continuity between the old doctrine of value and the new; and that we should treat imputed or derived values merely as elements which take their place with many others in the broad problem of distribution and exchange. The new phrases merely give the means of applying to the ordinary affairs of life, some of that precision of expression which is the special property of mathematical language. Producers have always to consider how the demand for any raw material in which they are interested is dependent on the demand for the things in making which it is used, and how it is influenced by every change that affects them; and this is really a special case of the problem of ascertaining the efficient strength of any one of the forces, which contribute to a common result. In mathematical language this common result is called a *function* of the various forces: and the (marginal) contribution, which any of them is making to it, is represented by the (small) change in the result which would result from a (small) change in that force; that is by the *differential coefficient* of the result with regard to that force. In other words, the imputed value, or the derived value of a factor of production, if used for only one product, is the differential coefficient of that product with regard to that factor; and so on in successive complications, as indicated in Notes XIV.–XXI. of the Mathematical Appendix. (Some objections to parts of Prof. Wieser's doctrine of imputed values are well urged by Prof. Edgeworth, *Economic Journal*, Vol. v. pp. 279–85.)

CHAPTER VII

PRIME AND TOTAL COST IN RELATION TO JOINT PRODUCTS. COST OF MARKETING. INSURANCE AGAINST RISK. COST OF REPRODUCTION

§ 1. We may now return to the consideration of prime and supplementary costs, with special reference to the proper distribution of the latter between the joint products of a business. V, vii, 1.

Supplementary costs of joint products. Difficulty arising when one branch of a business supplies a raw material to another.

It often happens that a thing made in one branch of a business is used as a raw material in another, and then the question of the relative profitableness of the two branches can be accurately ascertained only by an elaborate system of book-keeping by double entry; though in practice it is more common to rely on rough estimates made by an almost instinctive guess. Some of the best illustrations of this difficulty are found in agriculture, especially when the same farm combines permanent pasture and arable land worked on long rotation.[1]

Difficulties as to the joint products of the same business,

Another difficult case is that of the shipowner who has to apportion the expenses of his ship between heavy goods and goods that are bulky but not heavy. He tries, as far as may be, to get a mixed cargo of both kinds; and an important element in the struggle for existence of rival ports is the disadvantage under which those ports lie which are able to offer a cargo only of bulky or only of heavy goods: while a port whose chief exports are weighty but not bulky, attracts to its neighbourhood industries which make for export goods that can be shipped from it at low freights. The Staffordshire Potteries, for example, owe part of their success to the low freights at which their goods are carried by ships sailing from the Mersey with iron and other heavy cargoes.

are often overcome through the power of varying the details of the plan of production.

But there is free competition in the shipowning trade, and it has great powers of variation as regards the size and shape of ships, the routes which they take, and the whole method of trading; and thus in many ways the general principle can be applied, that the relative proportions of the joint products of a business should be so modified that the marginal expenses of production of either product

[1] There is scope for applications of mathematical or semi-mathematical analyses, such as are indicated in the last chapter, to some of the chief practical difficulties of book-keeping by double entry in different trades.

V, VII, 2.

should be equal to its marginal demand price.[1] Or, in other words, the amount of carrying power for each kind of cargo has a constant tendency to move towards equilibrium at a point at which the demand price for that amount in a normal state of trade is just sufficient to cover the expenses of providing it; these expenses being reckoned so as to include not only its (money) prime cost, but also all those general expenses of the business which are in the long run incurred on its account, whether directly or indirectly.[2]

A first approximation is sometimes got by treating supplementary as proportional to prime cost.

In some branches of manufacture it is customary to make a first approximation to the total cost of producing any class of goods, by assuming that their share of the general expenses of the business is proportionate either to their prime cost, or to the special labour bill that is incurred in making them. Corrections can then be made to meet such cases as those of goods which require either more or less than an average share of space or light, or of the use of expensive machinery; and so on.

§ 2. There are two elements of the general expenses of a business, the sharing of which between the different branches requires some special attention. They are the expense of marketing and that of insurance against risk.

The difficulty of assigning to each branch of a business its share of the expenses of marketing

Some kinds of goods are easily marketed; there is a steady demand for them, and it is always safe to make them for stock. But for that very reason competition cuts their price " very fine," and does not allow a large margin above the direct cost of making them. Sometimes the tasks of making and selling them can be rendered almost automatic, so as to require very little to be charged on their account under the heads of the expenses of management and marketing. But in practice it is not uncommon to charge such goods with even less than the small share that would properly fall to them, and to use them as a means of obtaining and maintaining a business connection, that will facilitate the marketing of other classes of goods, the production of which cannot so well be reduced to routine; for as to these there is not so close a competition. Manufacturers, especially in trades connected with furniture and dress, and retailers in almost all trades, frequently find it best to use certain of their goods as a means of advertising others, and to

[1] Compare ch. VI. § 4.

[2] Of course this does not apply to railway rates. For a railway company having little elasticity as to its methods of working, and often not much competition from outside, has no inducement to endeavour to adjust the charges which it makes for different kinds of traffic to their cost to itself. In fact though it may ascertain the prime cost in each case easily enough, it cannot determine accurately what are the relative total costs of fast and slow traffic, of short and long distance traffic, of light and heavy traffic; nor again of extra traffic when its lines and its trains are crowded and when they are nearly empty.

charge the first with less and the second with more than their proportionate share of Supplementary expenses. In the former class they put those goods which are so uniform in character and so largely consumed that nearly all purchasers know their value well, in the second those with regard to which purchasers think more of consulting their fancy than of buying at the lowest possible price. V, VII, 2.

All difficulties of this kind are much increased by that instability of supply price, which results whenever the tendency to increasing return is acting strongly. We have seen that in seeking the normal supply price in such cases we must select as representative a business which is managed with normal ability and so as to get its fair share of the economies, both internal and external, resulting from industrial organization: also that these economies, though they fluctuate with the fortunes of particular businesses, yet increase generally when the aggregate production increases. Now it is obvious that if a manufacturer makes a commodity the increased production of which would put largely increased internal economies within his reach, it is worth his while to sacrifice a great deal in order to push its sales in a new market. If he has a large capital, and the commodity is one in much demand, his expenditure for this purpose may be very great, even exceeding that which he devotes directly to the manufacture: and if, as is likely, he is pushing at the same time several other commodities, nothing more than a very rough guess can be made as to what share of this expenditure should be charged to the sales of each of them in the current year, and what share should be charged to the connection which he is endeavouring to build up for them in the future.

becomes very great when the law of increasing return acts strongly;

In fact when the production of a commodity conforms to the law of increasing return in such a way as to give a very great advantage to large producers, it is apt to fall almost entirely into the hands of a few large firms; and then the normal marginal supply price cannot be isolated on the plan just referred to, because that plan assumes the existence of a great many competitors with businesses of all sizes, some of them being young and some old, some in the ascending and some in the descending phase. The production of such a commodity really partakes in a great measure of the nature of a monopoly; and its price is likely to be so much influenced by the incidents of the campaign between rival producers, each struggling for an extension of territory, as scarcely to have a true normal level.

especially when the production falls into the hands of a few large firms.

Economic progress is constantly offering new facilities for marketing goods at a distance: it not only lowers cost of carriage, but what is often more important, it enables producers and consumers

Economies in production are

V, VII, 3.

often balanced by local facilities for marketing.

in distant places to get in touch with one another. In spite of this, the advantages of the producer who lives on the spot are very great in many trades; they often enable him to hold his own against competitors at a distance whose methods of production are more economical. He can sell in his own neighbourhood as cheaply as they can, because though the cost of making is greater for his goods than for theirs, he escapes much of the cost which they incur for marketing. But time is on the side of the more economic methods of production; his distant competitors will gradually get a stronger footing in the place, unless he or some new man adopts their improved methods.

It remains to make a closer study of the relation in which insurance against the risks of a business stands to the supply price of any particular commodity produced in it.

An insurance cannot be effected at moderate rates against all business risks.

§ 3. The manufacturer and the trader commonly insure against injury by fire and loss at sea; and the premiums which they pay are among the general expenses, a share of which has to be added to the prime cost in order to determine the total cost of their goods. But no insurance can be effected against the great majority of business risks.

Even as regards losses by fire and sea, insurance companies have to allow for possible carelessness and fraud; and must therefore, independently of all allowances for their own expenses and profits, charge premiums considerably higher than the true equivalent of the risks run by the buildings or the ships of those who manage their affairs well. The injury done by fire or sea however is likely, if it occurs at all, to be so very great that it is generally worth while to pay this extra charge; partly for special trade reasons, but chiefly because the total utility of increasing wealth increases less than in proportion to its amount. But the greater part of business risks are so inseparably connected with the general management of the business that an insurance company which undertook them would really make itself responsible for the business: and in consequence every firm has to act as its own insurance office with regard to them. The charges to which it is put under this head are part of its general expenses, and a share of them has to be added to the prime cost of each of its products.

But here there are two difficulties. In some cases insurance against risk is apt to be left out of account altogether, in others it is apt to be counted twice over. Thus a large shipowner sometimes declines to insure his ships with the underwriters: and sets aside part at least of the premiums that he might have paid to them, to

build up an insurance fund of his own. But he must still, when calculating the total cost of working a ship, add to its prime cost a charge on account of insurance. And he must do the same thing, in some form or other, with regard to those risks against which he could not buy an insurance policy on reasonable terms even if he wanted to. At times, for instance, some of his ships will be idle in port, or will earn only nominal freights: and to make his business remunerative in the long run he must, in some form or other, charge his successful voyages with an insurance premium to make up for his losses on those which are unsuccessful.

V, VII, 4.

Caution against overlooking certain insurance expenses,

In general, however, he does this, not by making a formal entry in his accounts under a separate head, but by the simple plan of taking the average of successful and unsuccessful voyages together; and when that has once been done, insurance against these risks cannot be entered as a separate item in cost of production, without counting the same thing twice over. Having decided to run these risks himself, he is likely to spend a little more than the average of his competitors, in providing against their occurrence; and this extra expense enters in the ordinary way into his balance-sheet. It is really an insurance premium in another form; and therefore he must not count insurance against this part of the risk separately, for then he would be counting it twice over.[1]

and against counting others twice over.

When a manufacturer has taken the average of his sales of dress materials over a long time, and bases his future action on the results of his past experience, he has already allowed for the risk that the machinery will be depreciated by new inventions rendering it nearly obsolete, and for the risk that his goods will be depreciated by changes in fashion. If he were to allow separately for insurance against these risks, he would be counting the same thing twice over.[2]

§ **4.** Thus, though when we have counted up the average receipts of a risky trade, we must not make a separate full allowance for

But uncertainty

[1] Again, certain insurance companies in America take risks against fire in factories at very much less than the ordinary rates, on condition that some prescribed precautions are taken, such as providing automatic sprinklers and making the walls and floor solid. The expense incurred in these arrangements is really an insurance premium; and care must be taken not to count it twice over. A factory which undertakes its own risks against fire will have to add to the prime cost of its goods an allowance for insurance at a lower rate, if it is arranged on this plan, than if built in the ordinary way.

[2] Again, when a farmer has calculated the expenses of raising any particular crop with reference to an average year, he must not count in addition insurance against the risk that the season may be bad, and the crop a failure: for in taking an average year, he has already set off the chances of exceptionally good and bad seasons against one another. When the earnings of a ferryman have been calculated on the average of a year, allowance has already been made for the risk that he may sometimes have to cross the stream with an empty boat.

V, VII, 5.

— is an evil in itself,

insurance against risk; though there may be something to be allowed as a charge on account of uncertainty. It is true that an adventurous occupation, such as gold mining, has special attractions for some people: the deterrent force of risks of loss in it is less than the attractive force of chances of great gain, even when the value of the latter estimated on the actuarial principle is much less than that of the former; and as Adam Smith pointed out, a risky trade, in which there is an element of romance, often becomes so overcrowded that the average earnings in it are lower than if there were no risks to be run.[1] But in the large majority of cases the influence of risk is in the opposite direction; a railway stock that is certain to pay four per cent. will sell for a higher price than one which is equally likely to pay one or seven per cent. or any intermediate amount.

and an average gain generally counts for less, the more uncertain the elements of which it is made up.

Every trade then has its own peculiarities, but in most cases the evils of uncertainty count for something, though not very much: in some cases a slightly higher average price is required to induce a given outlay, if that average is the mean of widely divergent and uncertain results, than if the adventurer may reckon confidently on a return that differs but little from that average. To the average price therefore we must add a recompense for uncertainty, if that is unusually great; though if we added insurance against risk we should be counting the greater part of that twice over.[2]

To substitute cost of reproduction for cost of production in the theory of normal values is to make no real change;

§ 5. This discussion of the risks of trade has again brought before us the fact that the value of a thing, though it tends to equal its normal (money) cost of production, does not coincide with it at any particular time, save by accident. Carey, observing this, suggested that we should speak of value in relation to (money) cost of reproduction instead of in relation to cost of production.

The suggestion has, however, no significance so far as normal values are concerned. For normal cost of production and normal cost of reproduction are convertible terms; and no real change is made by saying that the normal value of a thing tends to equal its normal (money) cost of reproduction instead of its normal (money) cost of production. The former phrase is less simple than the latter, but means the same thing.

and though the market value of a thing is sometimes nearer cost of re-

And no valid argument for the change can be founded on the fact, which may be readily admitted, that there are some few cases in which the market value of a thing is nearer its cost of reproduction than the cost that was actually incurred in producing that particular thing. The present price of an iron ship for instance, made before

[1] *Wealth of Nations*, Book I. ch. x.

[2] The evils resulting from the uncertainty involved in great business risks are well shown by von Thünen (*Isolirter Staat*, II. I. p. 82).

the great recent improvements in the manufacture of iron, might diverge less from the cost of reproducing it, that is of producing another just like it by modern methods, than from that which was actually incurred in producing it. But the price of the old ship would be less than the cost of reproduction of the ship, because the art of designing ships has improved as fast as that of manufacturing iron; and moreover steel has displaced iron as the material of shipbuilding. It may still be urged that the price of the ship is equal to that of producing a ship, which would be equally serviceable, on a modern plan and by modern methods. But that would not be the same thing as saying that the value of the ship is equal to its cost of reproduction; and, as a matter of fact, when, as often happens, an unexpected scarcity of ships causes freights to increase very rapidly, those who are anxious to reap the harvest of profitable trade, will pay for a ship in sailing order a price much above that for which a shipbuilding firm would contract to produce another equally good and deliver it some time hence. Cost of reproduction exerts little direct influence on value, save when purchasers can conveniently wait for the production of new supplies.

V, VII, 5.

production than cost of production, it is not governed by cost of reproduction.

Again, there is no connection between cost of reproduction and price in the case of food in a beleaguered city, of quinine the supply of which has run short in a fever-stricken island, of a picture by Raphael, of a book that nobody cares to read, of an armour-clad ship of obsolete pattern, of fish when the market is glutted, of fish when the market is nearly empty, of a cracked bell, of a dress material that has gone out of fashion, or of a house in a deserted mining village.

* * *

The reader, unless already experienced in economic analysis, is recommended to omit the next seven chapters, and pass at once to Chapter XV., which contains a brief summary of this Book. It is true that the four chapters on marginal costs in relation to values, and especially Chapters VIII. and IX., bear upon some difficulties which are latent in the phrase "the net product of labour"; and that this phrase is used in Book VI. But the broad explanation of it given there will suffice provisionally for most purposes; and the intricacies connected with it may be best appreciated at a somewhat advanced stage of economic studies.

CHAPTER VIII

MARGINAL COSTS IN RELATION TO VALUES. GENERAL PRINCIPLES

This and the next three chapters continue the main argument of chapters IV.–VI.

§ 1. THIS Chapter and the three following are given to a study of the marginal costs of products in relation to the values of those products on the one hand, and on the other hand to the values of the land, machinery, and other appliances used in making them. *The study relates to normal conditions and long period results.* This fact must ever be borne in mind. The market value of anything may be much above or much below the normal cost of production : and the marginal costs of a particular producer at any time may stand in no close relation to marginal costs under normal conditions.[1]

It was indicated at the end of Chapter VI. that no one part of the problem can be isolated from the rest. There are comparatively few things the demand for which is not greatly affected by the demand for other things to the usefulness of which they contribute ; and it may even be said that the demand for the majority of articles of commerce is not direct but is derived from the demand for those commodities to the making of which they contribute, as materials or as implements. And again this demand, because it is so derived, is largely dependent on the supply of other things which will work with them in making those commodities. And again the supply of anything available for use in making any commodity is apt to be greatly influenced by the demand for that thing derived from its uses in making other commodities : and so on. These inter-relations can be and must be ignored in rapid and popular discussions on the business affairs of the world. But no study that makes any claim to thoroughness can escape from a close investigation of them. This requires many things to be borne in mind at the same time : and for that reason economics can never become a simple science.[2]

The contribution which this group of chapters aims at making

[1] Numerous objections have been urged against the important place assigned to marginal costs in modern analysis. But it will be found that most of them rely on arguments, in which statements referring to normal conditions and normal value are controverted by statements relating to abnormal or particular conditions.

[2] The reader is referred to the footnote on p. 326 with special reference to the compressed mathematical version of the central problem of value which begins in Note XIV. in the Mathematical Appendix and culminates in Note XXI.

covers little ground: but that ground is difficult: and we shall need to work over it carefully, and from more than one point of view; for it is thickly strewn with pitfalls and stumbling blocks. It deals primarily with the earnings of land, machinery, and other material agents of production. Its main argument applies to the earnings of human beings; but they are influenced by some causes which do not affect the earnings of material agents of production: and the matter in hand is sufficiently difficult without further complicating it by side issues.

V, VIII, 2.

Reasons for dealing here only with material, implements, etc.

§ 2. Let us begin by recalling the action of the principle of substitution. In the modern world nearly all the means of production pass through the hands of employers and other business men, who specialize themselves in organizing the economic forces of the population. Each of them chooses in every case those factors of production which seem best for his purpose. And the sum of the prices which he pays for those factors which he uses is, as a rule, less than the sum of the prices which he would have to pay for any other set of factors which could be substituted for them: for, whenever it appears that this is not the case, he will, as a rule, set to work to substitute the less expensive arrangement or process.[1]

Restatement of the principle of substitution.

This statement is in close harmony with such common sayings of every-day life, as that "everything tends to find its own level," that "most men earn just about what they are worth," that "if one man can earn twice as much as another, that shows that his work is worth twice as much," that "machinery will displace manual labour whenever it can do the work cheaper." The principle does not indeed act without hindrance. It may be restricted by custom or law, by professional etiquette or trade-union regulation: it may be weakened by want of enterprise, or it may be softened by a generous unwillingness to part with old associates. But it never ceases to act, and it permeates all the economic adjustments of the modern world.

Thus there are some kinds of field work for which horse-power is clearly more suitable than steam-power, and *vice versâ*. If we may now suppose that there have been no great recent improvements in horse or steam machinery, and that therefore the experience of the past has enabled farmers gradually to apply the law of substitution; then, on this supposition the application of steam-power will have been pushed just so far that any further use of it in the place of horse-power would bring no net advantage. There will however remain a margin on which they could be *indifferently* applied (as

Illustrations.

[1] Compare V. III. 3; and V. IV. 3, 4; and Note XIV. in the Mathematical Appendix.

V, VIII, 3. Jevons would have said); and on that margin the net efficiency of either in adding to the money value of the total product will be proportionate to the cost of applying it.[1]

Similarly, if there are two methods of obtaining the same result, one by skilled and the other by unskilled labour, that one will be adopted which is the more efficient in proportion to its cost. There will be a margin on which either will be indifferently applied.[2] On that line the efficiency of each will be in proportion to the price paid for it, account being taken of the special circumstances of different districts and of different workshops in the same district. In other words, the wages of skilled and unskilled labour will bear to one another the same ratio that their efficiencies do at the margin of indifference.

Again, there will be a rivalry between hand-power and machine-power similar to that between two different kinds of hand-power or two different kinds of machine-power. Thus hand-power has the advantage for some operations, as, for instance, for weeding out valuable crops that have an irregular growth; horse-power in its turn has a clear advantage for weeding an ordinary turnip field; and the application of each of them will be pushed in each district till any further use of it would bring no net advantage there. On the margin of indifference between hand-power and horse-power their prices must be proportionate to their efficiency; and thus the influence of substitution will tend to establish a direct relation between the wages of labour and the price that has to be paid for horse-power.

The *net product* at the margin.

§ **3.** As a rule many kinds of labour, of raw material, of machinery and other plant, and of business organization, both internal and external, go to the production of a commodity: and the advantages of economic freedom are never more strikingly manifest than when a business man endowed with genius is trying experiments, at his own risk, to see whether some new method, or combination of old methods, will be more efficient than the old. Every business man indeed, according to his energy and ability, is constantly endeavouring to obtain a notion of the relative efficiency of every agent of

[1] This margin will vary with local circumstances, as well as with the habits, inclinations, and resources of individual farmers. The difficulty of applying steam machinery in small fields and on rugged ground is overcome more generally in those districts in which labour is scarce than in those in which it is plentiful; especially if, as is probable, coal is cheaper, and the feed of horses dearer in the former than the latter.

[2] Skilled manual labour being generally used for special orders and for things of which not many are required of the same pattern; and unskilled labour aided by specialized machinery being used for others. The two methods are to be seen side by side on similar work in every large workshop: but the position of the line between them will vary a little from one workshop to another.

production that he employs; as well as of others that might possibly be substituted for some of them. He estimates as best he can how much *net product* (*i.e.* net addition to the value of his total product) will be caused by a certain extra use of any one agent; *net* that is after deducting for any extra expenses that may be indirectly caused by the change, and adding for any incidental savings. He endeavours to employ each agent up to that margin at which its net product would no longer exceed the price he would have to pay for it. He works generally by trained instinct rather than formal calculation; but his processes are substantially similar to those indicated in our study of derived demand; and, from another point of view, they may be described as those which might be reaped by a complex and refined system of book-keeping by double entry.[1] V, VIII, 4.

Illustration of the way in which the net product of an agent of production may be estimated.

We have already followed some simple estimates of this sort. We have noticed, for instance, how the proportion of hops and malt in ale can be varied, how the extra price which can be got for ale by increasing the quantity of hops in it is a representative of the causes which govern the demand price for hops. Assuming that no further trouble or expense of any kind is involved by this additional use of hops, and that the expediency of using this extra amount is doubtful, the extra value thus given to the ale is the marginal net product of the hops of which we are in search. In this case, as in most others, the net product is an improvement in quality or a general contribution to the value of the product; it is not a definite part of the produce which can be separated from the rest. But in exceptional instances that can be done.[2]

The diminishing return from disproportionate use of any agent of production, is

§ **4.** The notion of the marginal employment of any agent of production implies a possible tendency to diminishing return from its increased employment.

Excessive applications of any means to the attainment of any end are indeed sure to yield diminishing returns in every branch of business; and, one may say, in all the affairs of life. We may take

[1] The changes, which he desires, may be such as could only be made on a large scale; as for instance the substitution of steam-power for hand-power in a certain factory; and in that case there would be a certain element of uncertainty and risk in the change. Such breaches of continuity are however inevitable both in production and consumption if we regard the action of single individuals. But as there is a continuous demand in a large market for hats and watches and wedding cakes, though no individual buys many of them (see III. III. 5), so there will always be trades in which small businesses are most economically conducted without steam-power, and larger businesses with; while businesses of intermediate size are on the margin. Again, even in large establishments in which steam is already in use, there will always be some things done by hand-power which are done by steam-power elsewhere; and so on.

[2] See p. 320, and Mathematical Note XVI. See also other illustrations in V. VI., VII. A further illustration of the relation between the wages of the marginal shepherd, and the net product of his labour will be worked out in detail in VI. I. 7.

V, VIII, 4.

akin to, but distinct from, Diminishing Return of land in general to more intensive cultivation, however appropriate.

some additional examples of a principle that has already been illustrated.[1] In the manufacture of sewing machines some parts may well be made of cast iron; for others a common kind of steel will suffice; there are yet others for which a specially expensive steel-compound is needed; and all parts should be finished off more or less smoothly, so that the machine may work easily. Now if any one devoted a disproportionate care and expense to the selection of materials for the less important uses, it might truly be said that that expenditure was yielding a rapidly diminishing return; and that he would have done better to give some of it to making his machines work smoothly, or even to producing more machines: and the case might be even worse if he devoted an excessive expenditure to mere brilliancy of finish, and put low grade metal to work for which a higher grade was needed.

This consideration seems at first to simplify economic problems; but on the contrary it is a chief source of difficulty and confusion. For though there is some analogy between all these various tendencies to diminishing return, they yet are not identical. Thus the diminishing return which arises from an ill-proportioned application of the various agents of production into a particular task has little in common with that broad tendency to the pressure of a crowded and growing population on the means of subsistence. The great classical Law of Diminishing Return has its chief application, not to any one particular crop, but to all the chief food crops. It takes for granted that farmers raise, as a rule, those crops for which their land and other resources are best adapted, account being taken of the relative demands for the several crops; and that they distribute their resources appropriately between different routes. It does not attribute to them unlimited intelligence and wisdom, but it assumes that, taking one with another, they have shown a reasonable amount of care and discretion in the distribution of these resources. It refers to a country the whole land of which is already in the hands of active business men, who can supplement their own capital by loans from banks wherever they can show it is likely to be well applied; and asserts that an increase in the total amount of capital applied to agriculture in that country will yield diminishing returns of produce in general. This statement is akin to, but yet quite distinct from, the statement that if any farmer makes a bad distribution of his resources between different plans of cultivation, he will get a markedly diminishing return from those elements of expenditure which he has driven to excess.

[1] See V. IV. 4; see also the note on von Thünen, below, p. 433.

For instance, in any given case, there is a certain proportion between the amounts which may with best advantage be spent on ploughing and harrowing, or manuring. There might be some differences of opinion on the matter, but only within narrow limits. An inexperienced person who ploughed many times over land, which was already in fairly good mechanical condition, while he gave it little or none of the manure which it was craving, would be generally condemned as having so over applied ploughing as to make it yield a rapidly diminishing return. But this result of the misapplication of resources has no very close connection with the tendency of agriculture in an old country to yield a diminishing return to a general increase of resources well applied in cultivation: and indeed exactly parallel cases can be found of a diminishing return to particular resources when applied in undue proportion, even in industries which yield an increasing return to increased applications of capital and labour when appropriately distributed.[1]

Marginal uses and costs do not govern value, but are

§ 5. The part played by the net product at the margin of production in the modern doctrine of Distribution is apt to be misunderstood. In particular many able writers have supposed that it represents the marginal use of a thing as *governing* the value of the

[1] See above IV. III. 8; and Carver, *Distribution of Wealth*, ch. II., and above footnotes on pp. 266. Mr. J. A. Hobson is a vigorous and suggestive writer on the realistic and social sides of economics: but, as a critic of Ricardian doctrines, he is perhaps apt to underrate the difficulty of the problems which he discusses. He argues that if the marginal application of any agent of production be curtailed, that will so disorganize production that every other agent will be working to less effect than before; and that therefore the total resulting loss will include not only the true marginal product of that agent, but also a part of the products due to the other agents: but he appears to have overlooked the following points:—(1) There are forces constantly at work tending so to readjust the distribution of resources between their different uses, that any maladjustment will be arrested before it has gone far: and the argument does not profess to apply to exceptional cases of violent maladjustment. (2) When the adjustment is such as to give the best results, a slight change in the proportions in which they are applied diminishes the efficiency of that adjustment by a quantity which is very small relatively to that change—in technical language it is of "the second order of smalls"—; and it may therefore be neglected relatively to that change. (In pure mathematical phrase, efficiency being regarded as a function of the proportions of the agents; when the efficiency is at its maximum, its differential coefficent with regard to any one of these proportions is zero.) A grave error would therefore have been involved, if any allowance had been made for those elements which Mr. Hobson asserts to have been overlooked. (3) In economics, as in physics, changes are generally continuous. Convulsive changes may indeed occur, but they must be dealt with separately: and an illustration drawn from a convulsive change can throw no true light on the processes of normal steady evolution. In the particular problem before us, this precaution is of special importance: for a violent check to the supply of any one agent of production, may easily render the work of all other agents practically useless; and therefore it may inflict a loss out of all proportion to the harm done by a small check to the supply of that agent when applied up to that margin, at which there was doubt whether the extra net product due to a small additional application of it would be remunerative. The study of changes in complex quantitative relations is often vitiated by a neglect of this consideration, to which Mr. Hobson seems to be prone; as indeed is instanced by his remarks on a "marginal shepherd" in *The Industrial System*, p. 110. See Professor Edgeworth's masterly analyses of the two instances mentioned in this note, *Quarterly Journal of Economics*, 1904, p. 167; and *Scientia*, 1910, pp. 95—100.

V, VIII, 6.

governed together with value by the general relations of demand and supply.

whole. It is not so; the doctrine says we must *go to the margin to study the action of those forces which govern* the value of the whole: and that is a very different affair. Of course the withdrawal of (say) iron from any of its necessary uses would have just the same influence on its value as its withdrawal from its marginal uses; in the same way as the pressure in a boiler for cooking under high pressure would be affected by the escape of any other steam just as it would by the escape of the steam in one of the safety valves: but in fact the steam does not escape except through the safety valves. In like manner iron, or any other agent of production, is not (under ordinary circumstances) thrown out of use except at points at which its use yields no clear surplus of profit; that is, it is thrown out from its marginal uses only.

Again, the finger of an automatic weighing machine determines, in the sense of *indicating*, the weight sought for. So the escape of steam from a safety valve, governed by a spring representing a pressure of a hundred pounds to the square inch, determines the pressure of steam in the boiler, in the sense of indicating that it has reached a hundred pounds to the inch. The pressure is caused by the heat; the spring in the valve governs the pressure by yielding and letting out some of the steam when its amount is so great, at the existing heat, as to overbear the resistance of the spring.

Similarly, with regard to machinery and other appliances of production made by man, there is a margin through which additional supplies come in after overcoming the resistance of a spring, called "cost of production." For when the supply of those appliances is so small relatively to the demand that the earnings expected from new supplies are more than sufficient to yield normal interest (or profits, if earnings of management are reckoned in) on their cost of production, besides allowing for depreciation, etc., then the valve opens, and the new supplies come in. When the earnings are less than this, the valve remains shut: and as anyhow the existing supply is always in process of slow destruction by use and the lapse of time, the supply is always shrinking when the valve is closed. The valve is that part of the machinery by which the general relations of demand and supply govern value. But marginal uses do not govern value; because they, together with value, are themselves governed by those general relations.

The terms Interest and Profits are directly applicable

§ 6. Thus, so long as the resources of an individual producer are in the form of general purchasing power, he will push every investment up to the margin at which he no longer expects from it a higher net return than he could get by investing in some other material, or

machine, or advertisement, or in the hire of some additional labour: every investment will, as it were, be driven up to a valve which offers to it a resistance equal to its own expanding force. If he invests in material or in labour, that is soon embodied in some saleable product: the sale replenishes his fluid capital, and that again is invested up to the margin at which any further investment would yield a return so diminished as not to be profitable. V, VIII, 6. to fluid capital;

But if he invests in land, or in a durable building or machine, the return which he gets from his investment may vary widely from his expectation. It will be governed by the market for his products, which may change its character largely through new inventions, changes in fashion, etc., during the life of a machine, to say nothing of the perpetual life of land. The incomes which he thus may derive from investments in land and in machinery differ from his individual point of view mainly in the longer life of the land. But in regard to production in general, a dominant difference between the two lies in the fact that the supply of land is fixed (though in a new country, the supply of land utilized in man's service may be increased); while the supply of machines may be increased without limit. And this difference reacts on the individual producer. For if no great new invention renders his machines obsolete, while there is a steady demand for the things made by them, they will be constantly on sale at about their cost of production; and his machines will generally yield him normal profits on that cost of production, with deductions corresponding to their wear and tear. but only indirectly and on certain definite assumptions to particular embodiments of capital.

Thus the rate of interest is a ratio: and the two things which it connects are both sums of money. So long as capital is "free," and the sum of money or general purchasing power over which it gives command is known, the net money income, expected to be derived from it, can be represented at once as bearing a given ratio (four or five or ten per cent.) to that sum. But when the free capital has been invested in a particular thing, its money value cannot as a rule be ascertained except by capitalizing the net income which it will yield: and therefore the causes which govern it are likely to be akin in a greater or less degree to those which govern rents.

We are thus brought to the central doctrine of this part of economics, viz.:—"That which is rightly regarded as interest on 'free' or 'floating' capital, or on new investments of capital, is more properly treated as a sort of rent—a *Quasi-rent*—on old investments of capital. And there is no sharp line of division between floating capital and that which has been 'sunk' for a special branch of production, nor between new and old investments of capital; The central doctrine of this group of chapters.

V, VIII, 6. each group shades into the other gradually. And thus even the rent of land is seen, not as a thing by itself, but as the leading species of a large genus; though indeed it has peculiarities of its own which are of vital importance from the point of view of theory as well as of practice."[1]

[1] This statement is reproduced from the Preface to the first edition of the present volume.

CHAPTER IX

MARGINAL COSTS IN RELATION TO VALUES. GENERAL PRINCIPLES, CONTINUED

§ 1. The incidents of the tenure of land are so complex: and so many practical issues connected with them have raised controversies on side issues of the problem of value, that it will be well to supplement our previous illustration from land. We may take another from an imaginary commodity so chosen that sharp outlines can be assigned to each stage of the problem, without inviting the objection that such sharp outlines are not found in the actual relations between landlord and tenant.

The essential features of rent proper are seen most clearly in an imaginary instance, aided by illustrations drawn from the incidence of taxes.

But before entering on this, we may prepare the way for using, as we go, illustrations drawn from the incidence of taxation to throw side-lights on the problem of value. For indeed a great part of economic science is occupied with the diffusion throughout the community of economic changes which primarily affect some particular branch of production or consumption; and there is scarcely any economic principle which cannot be aptly illustrated by a discussion of the shifting of the effects of some tax "forwards," *i.e.* towards the ultimate consumer, and away from the producer of raw material and implements of production; or else in the opposite direction, "backwards." But especially is this true of the class of problems now under discussion.[1]

Shifting forwards and backwards.

It is a general principle that if a tax impinges on anything used by one set of persons in the production of goods or services to be disposed of to other persons, the tax tends to check production. This tends to shift a large part of the burden of the tax forwards on to consumers, and a small part backwards on to those who supply the requirements of this set of producers. Similarly, a tax on the consumption of anything is shifted in a greater or less degree backwards on to its producer.

Incidence of a tax on printing.

For instance, an unexpected and heavy tax upon printing would strike hard upon those engaged in the trade, for if they attempted to raise prices much, demand would fall off quickly: but the blow

[1] The substance of this section is reproduced from answers to questions proposed by the Royal Commission on Local Taxation. See [C. 9528], 1899, pp. 112–126.

would bear unevenly on various classes engaged in the trade. Since printing machines and compositors cannot easily find employment out of the trade, the prices of printing machines and wages of compositors would be kept low for some time. On the other hand, the buildings and steam engines, the porters, engineers, and clerks would not wait for their numbers to be adjusted by the slow process of natural decay to the diminished demand; some of them would be quickly at work in other trades, and very little of the burden would stay long on those of them who remained in the trade. A considerable part of the burden, again, would fall on subsidiary industries, such as those engaged in making paper and type; because the market for their products would be curtailed. Authors and publishers would also suffer a little; because they would be forced either to raise the price of books, with a consequent diminution of sales, or to see a greater proportion of their gross receipts swallowed up by costs. Finally, the total turnover of the booksellers would diminish, and they would suffer a little.

A local tax on printing.

So far it has been assumed that the tax spreads its net very wide, and covers every place to which the printing industry in question could be easily transferred. But, if the tax were only local, the compositors would migrate beyond its reach; and the owners of printing houses might bear a larger and not a smaller proportionate share of the burden than those whose resources were more specialized but more mobile. If the local tax were uncompensated by any effect which tended to attract population, part of the burden would be thrown on local bakers, grocers, etc., whose sales would be diminished.

A tax on printing presses.

Next suppose the tax to be levied on printing presses instead of on printed matter. In that case, if the printers had no semi-obsolete presses which they were inclined to destroy or to leave idle, the tax would not strike marginal production: it would not immediately affect the output of printing, nor therefore its price. It would merely intercept some of the earnings of the presses on the way to the owners, and lower the quasi-rents of the presses. But it would not affect the rate of net profits which was needed to induce people to invest fluid capital in presses: and therefore, as the old presses wore out, the tax would add to marginal expenses, that is to expenses which the producer was free to incur or not as he liked, and which he was in doubt whether to incur. Therefore the supply of printing would be curtailed; its price would rise: and new presses would be introduced only up to the margin at which they would be able, in the judgment of printers generally, to pay the tax and yet

yield normal profits on the outlay. When this stage had been reached the distribution of the burden of a tax upon presses would henceforth be nearly the same as that of a tax upon printing: excepting only that there would be more inducement to get a great deal of work out of each press. For instance more of the presses might be made to work double shifts; in spite of the fact that night work involves special expenses.

We now pass to apply these principles of shifting of taxes to our main illustration.

A limited stock of large stones harder than diamonds.

§ 2. Let us suppose that a meteoric shower of a few thousand large stones harder than diamonds fell all in one place; so that they were all picked up at once, and no amount of search could find any more. These stones, able to cut every material, would revolutionize many branches of industry; and the owners of them would have a differential advantage in production, that would afford a large producer's surplus. This surplus would be governed wholly by the urgency and volume of the demand for their services on the one hand and the number of the stones on the other hand: it could not be affected by the cost of obtaining a further supply, because none could be had at any price. A cost of production might indeed influence their value indirectly: but it would be the cost of tools made of hard steel and other materials of which the supply can be increased to keep pace with demand. So long as any of the stones were habitually used by intelligent producers for work which could be done equally well by such tools, the value of a stone could not much exceed the cost of producing tools (allowance being made for wear and tear) equally efficient with it in these inferior uses.

The stones, being so hard as not to be affected by wear, would probably be kept in operation during all the working hours of the day. And if their services were very valuable, it might be worth while to keep people working overtime, or even in double or triple shifts, in order to extract the utmost service from them. But the more intensively they were applied, the less net return would be reaped from each additional service forced from them; thus illustrating the law that the intensive working not only of land, but of every other appliance of production is likely to yield a diminishing return if pressed far enough.

The purchaser would expect them to yield interest on their price.

The total supply of stones is fixed. But of course any particular manufacturer might obtain almost as many as he liked to pay for: and in the long run he would expect his outlay on them to be returned with interest (or profits, if the remuneration for his own work were not reckoned separately), just in the same way as if he were

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buying machinery, the total stock of which could be increased indefinitely, so that its price conformed pretty closely to its cost of production.

But the net income which he actually reaped from them would be governed by the value of their services, uncontrolled by fresh supplies dependent on cost.

But when he had once bought the stones, changes in the processes of production or of demand for the things made by their aid, might cause the income yielded by them to become twice as great or only half as great as he had expected. In the latter case it would resemble the income derived from a machine, which had not the latest improvements and could earn only half as much as a new machine of equal cost. The values of the stone and of the machine alike would be reached by capitalizing the income which they were capable of earning, and that income would be governed by the net value of the services rendered by them. The income earning power and therefore the value of each would be independent of its own costs of production, but would be governed by the general demand for its products in relation to the general supply of those products. But in the case of the machine that supply would be controlled by the cost of supply of new machines equally efficient with it; and in the case of the stone there would be no such limit, so long as all the stones in existence were employed on work that could not be done by anything else.

This argument may be put in another way. Since any one, who bought stones, would take them from other producers, his purchase would not materially affect the general relations of demand for the services of the stones to the supply of those services. It would not therefore affect the price of the stones; which would still be the capitalized value of the services which they rendered in those uses, in which the need for them was the least urgent: and to say that the purchaser expected normal interest on the price which represented the capitalized value of the services, would be a circular statement that the value of the services rendered by stones is governed by the value of those very services.[1]

[1] Such circular reasonings are sometimes nearly harmless: but they always tend to overlay and hide the real issues. And they are sometimes applied to illegitimate uses by company promoters; and by advocates of special interests, who desire to influence the course of legislation in their own favour. For instance a semi-monopolistic business aggregation or trust is often "over-capitalized." To effect this a time is chosen, at which the branch of production with which it is concerned is abnormally prosperous: when perhaps some solid firms are earning fifty per cent. net on their capital in a single year, and thus making up for lean years past and to come in which their receipts will do little more than cover prime costs. Financiers connected with the flotation sometimes even arrange that the businesses to be offered to the public shall have a good many orders to fill at specially favourable prices: the loss falling on themselves, or on other companies which they control. The gains to be secured by semi-monopolistic selling, and possibly by some further economies in production are emphasized: and the stock of the trust is absorbed by the public. If ultimately objection to the conduct of the trust is raised, and especially to the strengthening of its semi-monopolistic position by a high tariff or any other public favour, the answer is

Next let us suppose that the stones were not all found at once but were scattered over the surface of the earth on public ground, and that a laborious search might expect to be rewarded by finding one here and there. Then people would hunt for the stones only up to that point, or margin, at which the probable gain of so doing would in the long run just reward the outlay of labour and capital involved; and in the long run, the normal value of the stones would be such as to maintain equilibrium between demand and supply, the number of the stones gathered annually being in the long run just that for which the normal demand price was equal to the normal supply price.

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Next suppose that the supply of stones can be increased slowly;

Finally, let us bring the case of the stones into accord with that of the lighter machinery and other plant ordinarily used in manufacture, by supposing that the stones were brittle, and were soon destroyed; and that an inexhaustible store existed from which additional supplies could be obtained quickly and certainly at a nearly uniform cost. In this case the value of the stones would always correspond closely to that cost: variations in demand would have but little influence on their price, because even a slight change in price would quickly effect a great change in the stock of them in the market. In this case the income derived from a stone (allowance being made for wear-and-tear) would always adhere closely to interest on its cost of production.

and lastly that it can be increased quickly, and that the stones are quickly worn out.

§ 3. This series of hypotheses stretches continuously from the one extreme in which the income derived from the stones is a rent in the strictest sense of the term, to the other extreme in which it is to be classed rather with interest on free or floating capital. In the first extreme case the stones cannot be worn out or destroyed, and no more can be found. They of course tend to be distributed among the various uses to which they are applicable in such a way that there is no use to which an increased supply of them could be applied, without taking them away from some other use in which they were rendering net services at least as valuable. These margins of application of the several uses are thus *governed* by the relation in which the fixed stock of stones stands to the aggregate of demands for them in different uses. And the margins being thus governed, the prices that will be paid for their use are *indicated* by the value of the services which they render at any one of those margins.

The above string of hypotheses begins with rents proper,

given that the shareholders are receiving but a moderate return on their investments. Such cases are not uncommon in America. In this country a more moderate watering of the stock of some railways has been occasionally used indirectly as a defence of the shareholders against a lowering of rates, that threatens to reduce dividends on inflated capital below what would be a fair return on solid capital.

V, IX, 3.

and in this case a tax remains on the owners.

A uniform tax on them, collected from the user, will lower their net service in each use by the same amount: it will not affect their distribution between several uses; and it will fall wholly on the owner, after perhaps some little delay caused by a frictional resistance to readjustments.

At the other extreme are incomes kept close to interest (or profits) on money cost of production and here a tax falls upon users.

At the opposite extreme of our chain of hypotheses, the stones perish so quickly, and are so quickly reproduced at about a uniform cost, that variations in the urgency and volume of the uses to which the stones can be put will be followed so promptly by changes in the stock of them available, that those services can never yield much more or much less than normal *interest* on the money cost of obtaining additional stones. In this case a business man, when making his estimates for the cost of any undertaking in which stones will be used, may enter *interest* (or if he is counting his own work in, *profits*), for the time during which those stones will be used (together with wear-and-tear), as part of the prime, special, or direct expenses of his undertaking. A tax on the stones under these conditions would fall entirely on any one who even a little while after the tax had come into force, gave out a contract for anything in making which the stones would be used.

Intermediate stages.

Taking an intermediate hypothesis as to the length of life of the stones and the rapidity with which new supplies could be obtained; we find that the charges which the borrower of stones must expect to pay, and the revenue which the owner of the stones could reckon on deriving from them at any time, might temporarily diverge some way from interest (or profits) on their cost. For changes in the urgency and volume of the uses to which they could be applied, might have caused the value of the services rendered by them in their marginal uses to rise or fall a great deal, even though there had been no considerable change in the difficulty of obtaining them. And if this rise or fall, arising from variations in demand, and not from variations in the cost of the stones, is likely to be great during the period of any particular enterprise, or any particular problem of value that is under discussion; then for that discussion the income yielded by the stones is to be regarded as more nearly akin to a rent than to interest on the cost of producing the stones. A tax upon the stones in such a case would tend to diminish the rental which people would pay for their use, and therefore to diminish the inducements towards investing capital and effort in obtaining additional supplies. It would therefore check the supply, and compel those who needed the stones to pay gradually increasing rentals for their use, up to the point at which the rentals fully covered the costs of

producing the stones. But the time needed for this re-adjustment might be long: and in the interval a great part of the tax would fall upon the owners of the stones.

Prime costs relatively to long periods become supplementary relatively to short;

If the life of the stones was long relatively to that process of production in which the stones were used which was under discussion, the stock of stones might be in excess of that needed to do all the work for which they were specially fitted. Some of them might be lying almost idle, and the owner of these stones might make up his estimate of the marginal price for which he was just willing to work without entering in that estimate interest on the value of the stones. That is to say, some costs which would have been classed as prime costs in relation to contracts, or other affairs, which lasted over a long period, would be classed as supplementary costs in relation to a particular affair which would last but a short time, and which came under consideration when business was slack.

It is of course just as essential in the long run that the price obtained should cover general or supplementary costs as that it should cover prime costs. An industry will be driven out of existence in the long run as certainly by failing to return even a moderate interest on capital invested in steam engines, as by failing to replace the price of the coal or the raw material used up from day to day: just as a man's work will be stopped as certainly by depriving him of food as by putting him in chains. But the man can go on working fairly well for a day without food; while if he is put in chains the check to his work comes at once. So an industry may, and often does, keep tolerably active during a whole year or even more, in which very little is earned beyond prime costs, and the fixed plant has "to work for nothing." But when the price falls so low that it does not pay for the out of pocket expenses during the year for wages and raw material, for coal and for lighting, etc., then the production is likely to come to a sharp stop.

and there is a corresponding transition from interest on free capital to quasi-rents of embodied capital.

This is the fundamental difference between those incomes yielded by agents of production which are to be regarded as rents or quasi-rents and those which (after allowing for the replacement of wear-and-tear and other destruction) may be regarded as interest (or profits) on current investments. The difference is fundamental, but it is only one of degree. Biology tends to show that the animal and vegetable kingdoms have a common origin. But yet there are fundamental differences between mammals and trees; while in a narrower sense the differences between an oak tree and an apple tree are fundamental; and so are in a still narrower sense those between an apple tree and a rose bush, though they are both classed as

V, IX, 4. *rosaceæ*. Thus our central doctrine is that interest on free capital and quasi-rent on an old investment of capital shade into one another gradually; even the rent of land being not a thing by itself, but the leading species of a large genus.[1]

Economics learns from physics to reason about pure elements, though they are rarely isolated by nature.

§ 4. Again, pure elements are seldom isolated from all others by nature either in the physical or moral world. Pure rent in the strict sense of the term is scarcely ever met with: nearly all income from land contains more or less important elements which are derived from efforts invested in building houses and sheds, in draining the land and so on. But economists have learnt to recognize diversity of nature in those composite things to which the names of rent, profits, wages etc. are given in popular language; they have learnt that there is an element of true rent in the composite product that is commonly called wages, an element of true earnings in what is commonly called rent and so on. They have learnt in short to follow the example of the chemist who seeks for the true properties of each element; and who is thus prepared to deal with the common oxygen or soda of commerce, though containing admixtures of other elements.[2]

They recognize that nearly all land in actual use contains an element of capital; that separate reasonings are required for those parts of its value which are, and those which are not, due to efforts of man invested in the land for the purposes of production; and that the results of these reasonings must be combined in dealing with any particular case of that income which commonly goes by the name "rent," but not all of which is rent in the narrower sense of the term. The manner in which the reasonings are to be combined depends on the nature of the problem. Sometimes the mere

[1] See above, p. 341–2.

[2] Professor Fetter seems to ignore this lesson in an article on "The passing of the concept of rent" in the *Quarterly Journal of Economics*, May 1901, p. 419; where he argues that "if only those things which owe nothing to labour are classed as land, and if it is then shown that there is no material thing in settled countries of which this can be said, it follows that everything must be classed as capital." Again he appears to have missed the true import of the doctrines which he assails, when he argues (*ib.* pp. 423–9) against "Extension as the fundamental attribute of land, and the basis of rent." The fact is that its extension (or rather the aggregate of "its space relations") is the chief, though not the only property of land, which causes the income derived from it (in an old country) to contain a large element of true rent: and that the element of true rent, which exists in the income derived from land, or the "rent of land" in the popular use of the term, is in practice so much more important than any others that it has given a special character to the historical development of the Theory of Rent (see above, p. 123). If meteoric stones of absolute hardness, in high demand and incapable of increase, had played a more important part in the economic history of the world than land, then the elements of true rent which attracted the chief attention of students, would have been associated with the property of hardness; and this would have given a special tone and character to the development of the Theory of Rent. But neither extension nor hardness is a fundamental attribute of all things which yield a true rent. Professor Fetter seems also to have missed the point of the central doctrine as to rents, quasi-rents and interest, given above.

mechanical "composition of forces" suffices; more often allowance must be made for a quasi-chemical interaction of the various forces; while in nearly all problems of large scope and importance, regard must be had to biological conceptions of growth.

The distinction between differential rents and scarcity rents is not fundamental.

§ **5.** Finally a little may be said on a distinction that is sometimes made between "scarcity rents" and "differential rents." In a sense all rents are scarcity rents, and all rents are differential rents. But in some cases it is convenient to estimate the rent of a particular agent by comparing its yield to that of an inferior (perhaps a marginal) agent, when similarly worked with appropriate appliances. And in other cases it is best to go straight to the fundamental relations of demand to the scarcity or abundance of the means for the production of those commodities for making which the agent is serviceable.

Suppose for instance that all the meteoric stones in existence were equally hard and imperishable; and that they were in the hands of a single authority: further that this authority decided, not to make use of its monopolistic power to restrict production so as to raise the price of its services artificially, but to work each of the stones to the full extent it could be profitably worked (that is up to the margin of pressure so intensive that the resulting product could barely be marketed at a price which covered, with profits, its expenses without allowing anything for the use of the stone). Then the price of the services rendered by the stones would have been governed by the natural scarcity of the aggregate output of their services in relation to the demand for those services; and the aggregate surplus or rent would most easily be reckoned as the excess of this scarcity price over the aggregate expenses of working the stones. It would therefore generally be regarded as a scarcity rent. But on the other hand it could have been reckoned as the differential excess of the aggregate value of the net services of the stones over that which would have been reached if all their uses had been as unproductive as their marginal uses. And exactly the same would be true if the stones were in the hands of different producers, impelled by competition with one another to work each stone up to the margin at which its further use ceased to be profitable.

This last instance has been so chosen as to bring out the fact that the "differential" as well as the "scarcity" routes for estimating rent are independent of the existence of inferior agents of production: for the differential comparison in favour of the more advantageous uses of the stones can be made by reference to the marginal uses of good stones, as clearly as by reference to the use of

V, IX, 5.

inferior stones which are on the margin of not being worth using at all.

The existence of inferior agents does not raise, but lowers the rents of superior.

In this connection it may be noted that the opinion that the existence of inferior land, or other agents of production, tends to raise the rents of the better agents is not merely untrue. It is the reverse of the truth. For, if the bad land were to be flooded and rendered incapable of producing anything at all, the cultivation of other land would need to be more intensive; and therefore the price of the product would be higher, and rents generally would be higher, than if that land had been a poor contributor to the total stock of produce.[1]

[1] Compare Cassel, *Das Recht auf den vollen Arbeitsertrag*, p. 81.

The many misconceptions, that have appeared in the writings even of able economists, as to the nature of a quasi-rent, seem to arise from an inadequate attention to the differences between short periods and long in regard to value and costs. Thus it has been said that a quasi-rent is an "unnecessary profit," and that it is "no part of cost." Quasi-rent is correctly described as an unnecessary profit in regard to short periods, because no "special" or "prime" costs have to be incurred for the production of a machine that, by hypothesis, is already made and waiting for its work. But it is a necessary profit in regard to those other (supplementary) costs which must be incurred in the long run in addition to prime costs; and which in some industries, as for instance sub-marine telegraphy, are very much more important than prime costs. It is no part of cost under any conditions: but the confident expectation of coming quasi-rents is a necessary condition for the investment of capital in machinery, and for the incurring of supplementary costs generally.

Again a quasi-rent has been described as a sort of "conjuncture" or "opportunity" profit; and, almost in the same breath, as no profit or interest at all, but only a rent. For the time being, it is a conjuncture or opportunity income: while in the long run it is expected to, and it generally does, yield a normal rate of interest (or if earnings of management are counted in, of profit) on the free capital, represented by a definite sum of money that was invested in producing it. By definition the rate of interest is a percentage; that is a relation between two numbers (see above, p. 341). A machine is not a number: its value may be a certain number of pounds or dollars: but that value is estimated, unless the machine be a new one, as the aggregate of its (discounted) earnings, or quasi-rents. If the machine is new, its makers have calculated that this aggregate will appear to probable purchasers as the equivalent of a price which will repay the makers for it: in that case therefore it is as a rule, *both* a cost price, *and* a price which represents an aggregate of (discounted) future incomes. But when the machine is old and partially obsolete in pattern, there is no close relation between its value and its cost of production: its value is then simply the aggregate of the discounted values of the future quasi-rents, which it is expected to earn.

CHAPTER X

MARGINAL COSTS IN RELATION TO AGRICULTURAL VALUES

Agricultural production in general in an old country.

§ 1. We now pass from general considerations to those relating to land; and we begin with those specially applicable to agricultural land in an old country.

Suppose, that a war, which was not expected to last long, were to cut off part of the food supplies of England. Englishmen would set themselves to raise heavier crops by such extra application of capital or labour as was likely to yield a speedy return; they would consider the results of artificial manures, of the use of clod-crushing machines, and so on; and the more favourable these results were, the less would be the rise in the price of produce in the coming year which they regarded as necessary to make it worth their while to incur additional outlay in these directions. But the war would have very little effect on their action as to those improvements which would not bear fruit till it was over. In any inquiry then as to the causes that will determine the prices of corn during a short period, that fertility which the soil derives from slowly made improvements has to be taken for granted as it then is, almost in the same way as if it had been made by nature. Thus, the income derived from these permanent improvements gives a surplus above the *prime* or *special* costs needed for raising extra produce. But it is not a true surplus, in the same sense that rent proper is; *i.e.* it is not a surplus above the *total* costs of the produce: it is needed to cover the general expenses of the business.

To speak more exactly:—If the extra income derived from improvements that have been made in the land by its individual owner is so reckoned as not to include any benefit which would have been conferred on the land by the general progress of society independently of his efforts and sacrifices; then, as a rule, the whole of it is required to remunerate him for those efforts and sacrifices. He may have underestimated the gains which will result from them; but he is about equally likely to have made an overestimate. If he has estimated them rightly, his interest has urged him to make the investment as soon as it showed signs of being profitable: and in the absence of any special reason to the contrary we may suppose him

V, x, 1. to have done this. In the long run, then, the net returns to the investment of capital in the land, taking successful and unsuccessful returns together, do not afford more than an adequate motive to such investment. If poorer returns had been expected than those on which people actually based their calculations, fewer improvements would have been made.

That is to say :—for periods which are long in comparison with the time needed to make improvements of any kind, and bring them into full operation, the net incomes derived from them are but the price required to be paid for the efforts and sacrifices of those who make them : the expenses of making them thus directly enter into marginal expenses of production, and take a direct part in governing long-period supply price. But in short periods, that is, in periods short relatively to the time required to make and bring into full bearing improvements of the class in question, no such direct influence on supply price is exercised by the necessity that such improvements should in the long run yield net incomes sufficient to give normal profits on their cost. And therefore when we are dealing with such periods, these incomes may be regarded as quasi-rents which depend on the price of the produce.[1]

Summary of relations between marginal costs and value of agricultural produce in general in an old country.

We may conclude then :—(1) The amount of produce raised, and therefore the position of the margin of cultivation (*i.e.* the margin of the profitable application of capital and labour to good and bad land alike) are both governed by the general conditions of demand and supply. They are governed on the one hand by demand; that is, by the numbers of the population who consume the produce, the intensity of their need for it, and their means of paying for it; and on the other hand by supply; that is, by the extent and fertility of the available land, and the numbers and resources of those ready to cultivate it. Thus cost of production, eagerness of demand, margin of production, and price of the produce mutually govern one another: and no circular reasoning is involved in speaking of any one as in part governed by the others. (2) That part of the produce which

[1] Of course the character and extent of the improvements depends partly on the conditions of land tenure, and the enterprise and ability and command over capital on the part of landlords and tenants which existed at the time and place in question. In this connection we shall find, when we come to study land tenure, that there are large allowances to be made for the special conditions of different places.

It may be noted, however, that rent proper is estimated on the understanding that the original properties of the soil are unimpaired. And when the income derived from improvements is regarded as a quasi-rent, it is to be understood that they are kept up in full efficiency : if they are being deteriorated, the equivalent of the injury done to them must be deducted from the income they are made to yield before we can arrive at that *Net* income which is to be regarded as their quasi-rent.

That part of the income which is required to cover wear-and-tear bears some resemblance to a royalty, which does no more than cover the injury done to a mine by taking ore out of it.

goes as rent is of course thrown on the market, and acts on prices, in just the same way as any other part. But the general conditions of demand and supply, or their relations to one another, are not affected by the division of the produce into the share of rent and the share needed to render the farmer's expenditure profitable. The amount of that rent is not a governing cause; but is itself governed by the fertility of land, the price of the produce, and the position of the margin: it is the excess of the value of the total returns which capital and labour applied to land do obtain, over those which they would have obtained under circumstances as unfavourable as those on the margin of cultivation. (3) If the cost of production were estimated for parts of the produce which do not come from the margin, a charge on account of rent would of course need to be entered in this estimate; and if this estimate were used in an account of the causes which govern the price of the produce; then the reasoning would be circular. For that, which is wholly an effect, would be reckoned up as part of the cause of those things of which it is an effect. (4) The cost of production of the marginal produce can be ascertained without reasoning in a circle. The cost of production of other parts of the produce cannot. The cost of production on the margin of the profitable application of capital and labour is that to which the price of the whole produce tends, under the control of the general conditions of demand and supply: it does not govern price, but it focuses the causes which do govern price. V, x, 2.

§ 2. It has sometimes been suggested that if all land were equally advantageous and all were occupied, the income derived from it would partake of the nature of a monopoly rent: but this seems to be an error. Of course the landowners might conceivably combine to stint production, whether their properties were of equal fertility or not; the raised prices which would thus be obtained for the produce would be monopoly prices; and the incomes of the owners would be monopoly revenues rather than rents. But, with a free market, the revenues from land would be rents, governed by the same causes and in the same way in a country where the land was all of equal advantage, as in those where good and bad land were intermingled.[1]

Scarcity without inequalities of fertility gives rise to rent.

It is, indeed, true that if there were more than enough land, all of about the same fertility, to enable everyone to have as much of it as was needed to give full scope to the capital he was prepared to apply to it, then it could yield no rent. But that merely illustrates the old paradox that water, when abundant, has no market value:

[1] Compare V. ix. 5.

V, x, 2.

for though the services of some part of it are essential to support life, yet everyone can get without effort to that margin of satiety at which any further supplies would be of no service to him. When every cottager has a well from which he can draw as much water as he needs, with no more labour than is required at his neighbour's well, the water in the well has no market value. But let a drought set in, so that the shallow wells are exhausted, and even the deeper wells are threatened, then the owners of those wells can exact a charge for every bucket which they allow anyone to draw for his own use. The denser population becomes, the more numerous will be the occasions on which such charges can be made (it being supposed that no new wells are developed): and at last every owner of a well may find in it a permanent source of revenue.

When a new country is first settled, and land is free, immigration proceeds up to the margin at which the pioneer's endurance is just rewarded.

In the same way the scarcity value of land in a new country gradually emerges. The early settler exercises no exclusive privilege, for he only does what anyone else is at liberty to do. He undergoes many hardships, if not personal dangers; and perhaps he runs some risks that the land may turn out badly, and that he may have to abandon his improvements. On the other hand, his venture may turn out well; the flow of population may trend his way, and the value of his land may soon give as large a surplus over the normal remuneration of his outlay on it as the fishermen's haul does when they come home with their boat full. But in this there is no surplus above the rewards needed for his venture. He has engaged in a risky business which was open to all, and his energy and good fortune have given him an exceptionally high reward: anyone else might have taken the same chance as he did. Thus the income which he expects the land to afford in the future enters into the calculations of the settler, and adds to the motives which determine his action when in doubt as to how far to carry his enterprise. He regards its "discounted value"[1] as profits on his capital, and as earnings of his own labour, in so far as his improvements are made with his own hands.

Rent emerges as a surplus as demand for produce and the supply of labour increase.

A settler often takes up land with the expectation that the produce which it affords while in his possession, will fall short of an adequate reward for his hardships, his labour and his expenditure. He looks for part of his reward to the value of the land itself, which he may perhaps after a while sell to some new-comer who has no turn for the life of a pioneer. Sometimes even, as the British farmer learns to his cost, the new settler regards his wheat almost as a by-product; the main product for which he works is a farm, the

[1] Compare III. v. 3 and V. IV. 2.

title-deeds to which he will earn by improving the land: he reckons that its value will steadily rise, not through his own efforts so much as through the growth of those comforts and resources, and of those markets in which to buy and in which to sell, that are the product of the growing *public* prosperity.

This may be put in another way. People are generally unwilling to face the hardships and isolation of pioneer agriculture, unless they can look forward with some confidence to much higher earnings, measured in terms of the necessaries of life, than they could get at home. Miners cannot be attracted to a rich mine, isolated from other conveniences and varied social opportunities of civilization, except by the promise of high wages: and those who superintend the investment of their own capital in such mines expect very high profits. For similar reasons pioneer farmers require high aggregate gains made up of receipts for the sale of their produce, together with the acquisition of valuable title-deeds, to remunerate them for their labour and endurance of hardships. And the land is peopled up to that margin at which it just yields gains adequate for this purpose, without leaving any surplus for rent, when no charge is made for the land. When a charge is made, immigration spreads only up to that margin, at which the gains will leave a surplus, of the nature of rent, to cover such charges, in addition to rewarding the pioneer's endurance.

Land is but one form of capital to the individual producer.

§ **3.** With all this it is to be remembered that land is but a particular form of capital from the point of view of the individual producer. The question whether a farmer has carried his cultivation of a particular piece of land as far as he profitably can; and whether he should try to force more from it, or to take in another piece of land; is of the same kind as the question whether he should buy a new plough, or try to get a little more work out of his present stock of ploughs, using them sometimes when the soil is not in a very favourable condition, and feeding his horses a little more lavishly. He weighs the net product of a little more land against the other uses to which he could put the capital sum that he would have to expend in order to obtain it: and in like manner he weighs the net product, to be got by working his ploughs under unfavourable circumstances, against that got by increasing his stock of ploughs, and thus working under more favourable conditions. That part of his produce which he is in doubt whether to raise by extra use of his existing ploughs, or by introducing a new plough, may be said to be derived from a marginal use of the plough. It pays nothing *net* (*i.e.* nothing beyond a charge for actual wear-and-tear) towards the net income earned by the plough.

V, x, 3.

So again a manufacturer or trader, owning both land and buildings, regards the two as bearing similar relations to his business. Either will afford him aid and accommodation at first liberally; and afterwards with diminishing return, as he endeavours to force more and more from them: till at last he will doubt whether the overcrowding of his workshops or his storerooms is not so great a source of trouble, that it would answer his purpose to obtain more space. And when he comes to decide whether to obtain that space by taking in an extra piece of land or by building his factory a floor higher, he weighs the net income to be derived from further investments in the one against that to be derived from the other. That part of his production which he just forces out of his existing appliances (being in doubt whether it would not be better worth his while to increase those appliances than to work so intensively those which he has), does not contribute to the net income which those appliances yield him. This argument says nothing as to whether the appliances were made by man, or part of a stock given by nature; it applies to rents and quasi-rents alike.

Likeness amid unlikeness between true rent and quasi-rent.

But there is this difference from the point of view of society. If one person has possession of a farm, there is less land for others to have. His use of it is not in addition to, but in lieu of the use of a farm by other people: whereas if he invests in improvements of land or in buildings on it, he will not appreciably curtail the opportunities of others to invest capital in like improvements. Thus there is likeness amid unlikeness between land and appliances made by man. There is unlikeness because land in an old country is approximately (and in some senses absolutely) a *permanent and fixed stock*: while appliances made by man, whether improvements in land, or in buildings, or machinery, etc., are a flow capable of being increased or diminished according to variations in the effective demand for the products which they help in raising. So far there is unlikeness. But on the other hand there is likeness, in that, since some of them cannot be produced quickly, they are a practically *fixed stock for short periods*: and for those periods the incomes derived from them stand in the same relation to the value of the products raised by them, as do true rents.[1]

[1] The relations between rent and profits engaged the attention of the economists of the last generation; among whom may be specially mentioned Senior and Mill, Hermann and Mangoldt. Senior seemed almost on the point of perceiving that the key of the difficulty was held by the element of time: but here as elsewhere he contented himself with suggestions; he did not work them out. He says (*Political Economy*, p. 129), "for all useful purposes the distinction of profits from rent ceases as soon as the capital from which a given revenue arises has become, whether by gift or by inheritance, the property of a person to whose abstinence and exertions it did not owe its creation." Again, Mill says, *Political Economy*, Book III. ch. v. § 4, "Any

V, x, 4.

Illustration from the ultimate incidence of a tax on agricultural produce in general.

§ 4. Let us apply these considerations to the supposition that a permanent tax is to be levied on "corn," in the sense in which it was used by the classical economists as short for all agricultural produce. It is obvious that the farmer would try to make the consumer pay some part at least of the tax. But any rise in the price charged to the consumer would check demand, and thus react on the farmer. In order to decide how much of this tax would be shifted on to the consumer, we must study the *margin of profitable expenditure*, whether that be the margin of a little expenditure applied to poor land and land far removed from good markets, or the margin of a large expenditure applied to rich land, and land near to dense industrial districts.

If only a little corn had been raised near the margin, a moderate fall in the net price received by the farmer would not cause a great check to the supply of corn. There would therefore be no great rise in the price paid for it by the consumer; and the consumer would bear very little of the tax. But the surplus value of the corn over its expenses of production would fall considerably. The farmer, if cultivating his own land, would bear the greater part of the tax. And, if he were renting the land, he could demand a great reduction of his rent.

If, on the other hand, a great deal of corn had been raised near the margin of cultivation, the tax would tend to cause a great shrinkage of production. The consequent rise of price would arrest that shrinkage, leaving the farmer in a position to cultivate nearly as intensively as before: and the landlord's rent would suffer but little.[1]

Thus, on the one hand, a tax which is so levied as to discourage the cultivation of land or the erection of farm buildings on it, tends to be shifted forward on to the consumers of the produce of land. But, on the other hand, a tax on that part of the (annual) value of land, which arises from its position, its extension, its yearly income of sunlight and heat and rain and air, cannot settle anywhere except on

difference in favour of certain producers or in favour of production in certain circumstances is the source of a gain, which though not called rent unless paid periodically by one person to another, is governed by laws entirely the same with it."

It has been well observed that a speculator, who, without manipulating prices by false intelligence or otherwise, anticipates the future correctly; and who makes his gains by shrewd purchases and sales on the Stock Exchange or in Produce Markets, generally renders a public service by pushing forward production where it is wanted, and repressing it where it is not: but that a speculator in land in an old country can render no such public service, because the stock of land is fixed. At the best he can prevent a site with great possibilities from being devoted to inferior uses in consequence of the haste, ignorance, or impecuniosity of those in control of it.

[1] Of course the adjustments of rent to the true economic surplus from the land are in practice slow and irregular. These matters are discussed in VI. IX. and X., and the incidence of a tax on grain under certain rather arbitrary assumptions is studied in some detail in Appendix K.

V, x, 5.

the landlord; a lessee being, of course, landlord for the time. This (annual) value of the land is commonly called its "original value" or its "inherent value"; but much of that value is the result of the action of men, though not of its individual holders. For instance, barren heath land may suddenly acquire a high value from the growth of an industrial population near it; though its owners have left it untouched as it was made by nature. It is, therefore, perhaps more correct to call this part of the annual value of land its "*public value*"; while that part which can be traced to the work and outlay of its individual holders may be called its "private value." The old terms "inherent value" and "original value" may however be retained for general use, with a note of caution as to their partial inaccuracy. And, using another term that has precedent in its favour, we may speak of this annual public value of the land as "true rent."

The *public value* of land.

A tax on the public value of land does not greatly diminish the inducements to cultivate the land highly, nor to erect farm buildings on it. Such a tax therefore does not greatly diminish the supply of agricultural produce offered on the market, nor raise the price of produce; and it is not therefore shifted away from the owners of land.

Implicit assumption that the land is turned to reasonably good account.

This assumes that the true rent of land on which the tax is levied is assessed with reference to its general capabilities, and not to the special use which the owner makes of it: its net product is supposed to be that which could be got by a cultivator of normal ability and enterprise, turning it to good account to the best of his judgment. If an improved method of cultivation develops latent resources of the soil, so as to yield an increased return much in excess of what is required to remunerate the outlay with a good rate of profits; this excess of net return above normal profits belongs properly to true rent: and yet, if it is known, or even expected, that a very heavy special tax on true rent will be made to apply to this excess income, that expectation may deter the owner from making the improvement.[1]

Relations between marginal costs and value for any one kind of agricultural produce.

§ 5. A little has been said incidentally of the competition between different branches of industry for the same raw material or appliances for production. But now we have to consider the competition between various branches of agriculture for the same land. This case is simpler than that of urban land, because farming is a single business so far as the main crops are concerned; though the rearing of choice trees (including vines), flowers, vegetables, etc., affords scope for various kinds of specialized business ability. The classical economists were therefore justified in provisionally supposing that

[1] The exemption of vacant building land from taxes on its full value retards building. See Appendix G.

all kinds of agricultural produce can be regarded as equivalent to certain quantities of corn; and that all the land will be used for agricultural purposes, with the exception of building sites which are a small and nearly fixed part of the whole. But when we concentrate our attention on any one product, as for instance, hops, it may seem that a new principle is introduced. That is however not the case. Let us look into this.

The marginal costs and value of hops are governed by Substitution in combination with Diminishing Return to cultivation in general.

Hops are grown in varying rotations with other crops; and the farmer is often in doubt whether he shall grow hops or something else on one of his fields. Thus each crop strives against others for the possession of the land; and if any one crop shows signs of being more remunerative than before relatively to others, the cultivators will devote more of their land and resources to it. The change may be retarded by habit, or diffidence, or obstinacy, or limitations of the cultivator's knowledge; or by the terms of his lease. But it will still be true in the main that each cultivator—to recall once more the dominant principle of substitution—"taking account of his own means, will push the investment of capital in his business in each several direction until what appears in his judgment to be the margin of profitableness is reached; that is, until there seems to him no good reason for thinking that the gains resulting from any further investment in that particular direction would compensate him for his outlay."

Thus in equilibrium, oats and hops and every other crop will yield the same net return to that outlay of capital and labour, which the cultivator is only just induced to apply. For otherwise he would have miscalculated; he would have failed to get the *maximum* reward which his outlay can be made to yield: and it would still be open to him to increase his gains by redistributing his crops, by increasing or diminishing his cultivation of oats or some other crop.[1]

[1] In so far as the farmer is producing raw material, or even human food, for market, his distribution of resources between different uses is a problem of business economy: in so far as he is producing for his own domestic consumption, it is, in part at least, a problem of domestic economy. Compare above V. IV. 4. It may be added that Note XIV. in the Mathematical Appendix emphasizes the fact that that distribution of outlay between different enterprises, which will give a maximum aggregate return, is fixed by the same set of equations as that for the similar problem in domestic economy.

Mill (*Principles*, III. XVI. 2), when discussing "joint products," observed that all questions relating to the competition of crops for the possession of particular soils are complicated by the rotation of crops and similar causes; an intricate debit and credit account by double entry needs to be kept between the various members of the rotation. Practice and shrewd instinct enable the farmer to do this fairly well. The whole problem might be expressed in simple mathematical phrases. But they would be tedious, and perhaps unfruitful. They would therefore not be serviceable, so long as they remained abstract; though they belong to a class which may ultimately be of good use in the higher science of agriculture, when that has advanced far enough to fill in realistic details.

V, x, 5.

Competition of different crops for the same land: the incidence of a special tax on hops.

This brings us to consider taxation in reference to the competition of different crops for the use of the same land. Let us suppose that a tax is imposed on hops, wherever grown; it is not to be a mere local rate or tax. The farmer can evade a part of the pressure of the tax by lessening the intensity of his cultivation of the land which he plants with hops; and a yet further part by substituting another crop on land which he had proposed to devote to hops. He will have recourse to this second plan in so far as he considers that he would get a better result by growing another crop, and selling it free from the tax, than by growing hops and selling them in spite of the tax. In this case the surplus which he could obtain from the land by growing, say, oats upon it would come into his mind when deciding where to set the limit to his production of hops. But even here there would be no simple numerical relation between the surplus, or rent, which the land would yield under oats, and the marginal costs which the price of hops must cover. And a farmer whose land produced hops of exceptionally high quality, and which happened to be in good condition at the time for hops, would have no doubt at all that it was best to grow hops on the land; though in consequence of the tax he might decide to curtail a little his expenditure on it.[1]

[1] If for instance he reckoned that he could get a surplus of £30 above his expenses (other than rent) in spite of the tax by growing hops, and a surplus of only £20 above similar expenses by growing any other crop, it could not be truly said that the rent which the field could be made to yield by growing other crops, "entered into" the marginal price of oats. But it is easier to interpret the classical doctrine that "Rent does not enter into cost of production" in a sense in which it is not true, and to scoff at it, than in the sense in which it was intended and is true. It seems best therefore to avoid the phrase.

The ordinary man is offended by the old phrase that rent does not enter into the price of oats; when he sees that an increase in the demand for land for other uses, manifests itself in a rise of the rental value of all land in the neighbourhood; leaves less land free for growing oats; consequently makes it worth while to force larger crops of oats out of the remaining oat-land, and thus raises the marginal expenses of oats and their price. A rise in rent does serve as a medium through which the growing scarcity of land available for hops and other produce obtrudes itself on his notice; and it is not worth while to try to force him to go behind these symptoms of the change in conditions to the truly operative causes. It is therefore inexpedient to say that the rent of land does not enter into their price. But it is worse than inexpedient to say that the rent of the land does enter into their price: that is false.

Jevons asks (Preface to *Theory of Political Economy*, p. liv): "If land which has been yielding £2 per acre rent, as pasture, be ploughed up and used for raising wheat, must not the £2 per acre be debited against the expenses of production of wheat?" The answer is in the negative. For there is no connection between this particular sum of £2 and the expenses of production of that wheat which only just pays its way. What should be said is:—"When land capable of being used for producing one commodity is used for producing another, the price of the first is raised by the consequent limitation of its field of production. The price of the second will be the expenses of production (wages and profits) of that part of it which only just pays its way, that which is produced on the margin of profitable expenditure. And if for the purposes of any particular argument we take together the whole expenses of the production on that land, and divide these among the whole of the commodity produced; then the rent which we ought to count in is not that which the land would pay if used for producing the first commodity, but that which it does pay when used for producing the second."

Meanwhile the tendency towards a general restriction in the supply of hops would tend to raise their price. If the demand for them were very rigid, and hops of adequate quality could not easily be imported from beyond the range of this special tax, the price might rise by nearly the full amount of the tax. In that case the tendency would be checked, and very nearly as much hops would be grown as before the tax had been levied. And here, as in the case of a tax on printing, recently discussed, the effect of a local tax is in strong contrast to that of a general tax. For unless the local tax covered most of the ground in the country on which good hops could be grown, its effect would be to drive them beyond its boundary: very little revenue would be got from it, local farmers would suffer a good deal, and the public would pay a rather higher price for their hops.

V, x, 6.

Contrast between a general and a local tax on hops.

§ 6. The argument of the last section applies, so far as short periods are concerned, to the earning power of farm-buildings and to other quasi-rents. When existing farm-buildings, or other appliances which could be used in producing one commodity, are diverted to producing another because the demand for that is such as to enable them to earn a higher income by producing it, then *for the time* the supply of the first will be less, and its price higher than if the appliances had not been able to earn a higher income by another use. Thus, when appliances are capable of being used in more than one branch of agriculture, the marginal cost in each branch will be affected by the extent to which these appliances are called off for work in other branches. Other agents of production will be pushed to more intensive uses in the first branch, in spite of a diminishing return; and the value of its product will rise, because only at a higher value will the price be in equilibrium. The increased earning power of the appliances due to the external demand will appear to be the cause of this increase in value: for it will cause a relative scarcity of the appliances in that branch of production, and therefore raise marginal costs. And from this statement it appears superficially to be a simple transition to the statement that the increased earning power of the appliances enter into those costs which govern value. But the transition is illegitimate. There will be no direct or numerical relation between the increase in the price of the first commodity and the income that the appliances can earn when they have been transferred to the second industry and adapted for service in it.

Arguments relating to rent in relation to the value of a single crop extended to quasi-rent of farm-buildings, etc.

Similarly, if a tax be put on factories used in one industry, some of them will be diverted to other industries; and consequently

V, x, 6.

Parallel case in manufacture.

the marginal costs and therefore the values of the products in those industries will fall; simultaneously with a temporary fall in net rental values of factories in all uses. But these falls will vary in amount, and there will be no numerical relation between the fall in the prices of the product and in these rents, or rather quasi-rents.

The principles of these two chapters are not applicable to mines.

These principles are not applicable to mines, whether for short periods or for long. A royalty is *not* a rent, though often so called. For, except when mines, quarries, etc., are practically inexhaustible, the excess of their income over their direct outgoings has to be regarded, in part at least, as the price got by the sale of stored-up goods—stored up by nature indeed, but now treated as private property; and therefore the marginal supply price of minerals includes a royalty in addition to the marginal expenses of working the mine. Of course the owner desires to receive the royalty without undue delay; and the contract between him and the lessee often provides, partly for this reason, for the payment of a rent as well as a royalty. But the royalty itself on a ton of coal, when accurately adjusted, represents that diminution in the value of the mine, regarded as a source of wealth in the future, which is caused by taking the ton out of nature's storehouse.[1]

[1] See above, p. 140–1. Adam Smith is attacked by Ricardo for putting rent on the same footing with wages and profits as parts of (money) cost of production; and no doubt he does this sometimes. But yet he says elsewhere, "Rent it is to be observed enters into the composition of the price of commodities in a different way from wages and profit. High or low wages and profit are the causes of high or low price: high or low rent is the effect of it. It is because high or low wages and profit must be paid in order to bring a particular commodity to market that its price is high or low. But it is because its price is high or low a great deal more, or very little more, or no more than what is sufficient to pay those wages and profits, that it affords a high rent, or a low rent, or no rent at all." (*Wealth of Nations*, I. XI.) In this, as in many other instances, he anticipated in one part of his writings truths which in other parts he has seemed to deny.

Adam Smith discusses the "price at which coals can be sold for any considerable time"; and contends that "the most fertile mine regulates the price of coals at all other mines in the neighbourhood." His meaning is not clear; but he does not appear to be referring to any temporary underselling; and he seems to imply that the mines are leased at so much a year. Ricardo, following on apparently the same lines, comes to the opposite conclusion that it "is the least fertile mine which regulates price"; which is perhaps nearer the truth than Adam Smith's doctrine. But in fact when the charge for the use of a mine is mainly in the form of a royalty, neither proposition seems to be applicable. Ricardo was technically right (or at all events not definitely wrong) when he said that rent does not enter into the marginal cost of production of mineral produce. But he ought to have added that if a mine is not practically inexhaustible, the income derived from it is partly rent and partly royalty; and that though the rent does not, the minimum royalty does enter directly into the expenses incurred on behalf of every part of the produce, whether marginal or not.

The royalty is of course calculated in regard to those seams in the mine, which are neither exceptionally rich and easy of working, nor exceptionally poor and difficult. Some seams barely pay the expenses of working them; and some which run short, or have a bad fault, do not even nearly pay the wages of the labour spent on them. The whole argument however implicitly assumes the conditions of an old country. Professor Taussig is probably right when, having in view the circumstances of a new country (*Principles*, II. p. 96), he "doubts whether any payment at all can be secured by the owner of the very poorest mine, assuming he has done nothing to develop it."

CHAPTER XI

MARGINAL COSTS IN RELATION TO URBAN VALUES

Influence of situation on the value of agricultural land.

§ 1. THE last three chapters examined the relation in which cost of production stands to the income derived from the ownership of the "original powers" of land and other free gifts of nature, and also to that which is directly due to the investment of private capital. There is a third class, holding an intermediate position between these two, which consists of those incomes, or rather those parts of incomes which are the indirect result of the general progress of society, rather than the direct result of the investment of capital and labour by individuals for the sake of gain. This class has to be studied now, with special reference to the value of urban sites.

We have already noted that, though nature nearly always gives a less than proportionate return, when measured by *the amount* of the produce raised, to increasing applications of capital and labour in the cultivation of land; yet, on the other hand, if the more intensive cultivation is the result of the growth of a non-agricultural population in the neighbourhood, this very concourse of people is likely to raise *the value* of produce. We have seen how this influence opposes, and usually outweighs the action of the law of diminishing return when the produce is measured according to its value to the producer and not according to its amount; the cultivator gets good markets in which to supply his wants, as well as good markets in which to sell, he buys more cheaply while he sells more dearly, and the conveniences and enjoyments of social life are ever being brought more within his reach.[1]

In all trades access to external economies depends partly on situation.

Again, we have seen how the economies which result from a high industrial organization [2] often depend only to a small extent on the resources of individual firms. Those *internal* economies which each establishment has to arrange for itself are frequently very small as compared with those *external* economies which result from the general progress of the industrial environment; the situation of a business nearly always plays a great part in determining the extent to which it can avail itself of external economies; and the situation value which a site derives from the growth of a rich and active

[1] See IV. III. 6. [2] See IV. X.–XIII.

V, XI, 2. population close to it, or from the opening up of railways and other good means of communication with existing markets, is the most striking of all the influences which changes in the industrial environment exert on cost of production.

Situation value. If in any industry, whether agricultural or not, two producers have equal facilities in all respects, except that one has a more convenient situation than the other, and can buy or sell in the same markets with less cost of carriage, the differential advantage which his situation gives him is the aggregate of the excess charges for cost of carriage to which his rival is put. And we may suppose that other advantages of situation, such for instance as the near access to a labour market specially adapted to his trade, can be translated in like manner into money values. When this is done, and all are added together we have the money value of the advantages of situation which the first business has over the second: and this becomes its special *situation value*, if the second has no situation value and its site is reckoned merely at agricultural value. The extra income which can be earned on the more favoured site gives rise to what *Site value.* may be called a special situation rent: and the aggregate *site value* of any piece of building land is that which it would have if cleared of buildings and sold in a free market. The "annual site value"—to use a convenient, though not strictly correct form of speaking—is the income which that price would yield at the current rate of interest. It obviously exceeds the special situation value, merely by agricultural value; which is often an almost negligible quantity in comparison.[1]

Exceptional cases in which the income derived from § 2. It is obvious that the greater part of situation value is "public value." (See above, p. 360.) There are however exceptional cases, which call for notice. Sometimes the settlement of a whole town, or even district, is planned on business principles, and

[1] If we suppose that two farms, which sell in the same market, return severally to equal applications of capital and labour amounts of produce, the first of which exceeds the second by the extra cost of carrying its produce to market, then the rent of the two farms will be the same. (The capital and labour applied to the two farms are here supposed to be reduced to the same money measure, or which comes to the same thing, the two farms are supposed to have equally good access to markets in which to buy.) Again, if we suppose that two mineral springs *A* and *B* supplying exactly the same water are capable of being worked each to an unlimited extent at a constant money cost of production; this cost being, say twopence a bottle at *A* whatever the amount produced by it, and twopence halfpenny at *B*; then those places to which the cost of carriage per bottle from *B* is a halfpenny less than from *A*, will be the neutral zone for their competition. (If the cost of carriage be proportional to the distance, this neutral zone is a hyperbola of which *A* and *B* are foci.) *A* can undersell *B* for all places on *A*'s side of it, and *vice versâ*; and each of them will be able to derive a monopoly rent from the sale of its produce within its own area. This is a type of a great many fanciful, but not uninstructive, problems which readily suggest themselves. Compare von Thünen's brilliant researches in *Der isolirte Staat*.

V, XI, 2.

carried out as an investment at the expense and risk of a single person or company. The movement may be partly due to philanthropic or religious motives, but its financial basis will in any case be found in the fact that the concourse of numbers is itself a cause of increased economic efficiency. Under ordinary circumstances the chief gains arising from this efficiency would accrue to those who are already in possession of the place: but the chief hopes of commercial success, by those who undertake to colonize a new district or build a new town, are usually founded on securing these gains for themselves.

advantageous situation is earned by individual effort and outlay.

When, for instance, Mr. Salt and Mr. Pullman determined to take their factories into the country and to found Saltaire and Pullman City, they foresaw that the land, which they could purchase at its value for agricultural purposes, would obtain the special situation value which town property derives from the immediate neighbourhood of a dense population. And similar considerations have influenced those, who, having fixed upon a site adapted by nature to become a favourite watering-place, have bought the land and spent large sums in developing its resources: they have been willing to wait long for any net income from their investment in the hope that ultimately their land would derive a high situation value from the concourse of people attracted to it.[1]

Illustrations from Saltaire and Pullman City.

In all such cases the yearly income derived from the land (or at all events that part of it which is in excess of the agricultural rent) is for many purposes to be regarded as profits rather than rent. And this is equally true, whether the land is that on which the factory itself at Saltaire or Pullman City is built, or that which affords a high "ground-rent" as the site of a shop or store, whose situation will enable it to do a brisk trade with those who work in the factory. For in such cases great risks have to be run; and in all undertakings in which there are risks of great losses, there must also be hopes of great gains. The normal expenses of production of a commodity must include payment for the ventures required for producing it, sufficient to cause those who are on the margin of doubt whether to venture or not, to regard the probable net amount of their gains—net, that is, after deducting the probable amount of their losses—as compensating them for their trouble and their outlay. And that the gains resulting from such ventures are not much more than sufficient for this purpose is shown by the fact that they are not as yet very common. They are however likely to be more frequent in

[1] Cases of this kind are of course most frequent in new countries. But they are not very rare in old countries: Saltburn is a conspicuous instance; while a more recent instance of exceptional interest is furnished by Letchworth Garden City.

V, xi, 2. those industries which are in the hands of very powerful corporations. A large railway company, for instance, can found a Crewe or a New Swindon for manufacturing railway plant without running any great risk.[1]

Improvements effected at the joint expense of the landowners concerned.

Somewhat similar instances are those of a group of landowners who combine to make a railway, the net traffic receipts of which are not expected to pay any considerable interest on the capital invested in making it; but which will greatly raise the value of their land. In such cases part of the increase of their incomes as landowners ought to be regarded as profits on capital which they have invested in the improvement of their land: though the capital has gone towards making a railway instead of being applied directly to their own property.

Other cases of like nature are main drainage schemes, and other plans for improving the general condition of agricultural or town property, in so far as they are carried out by the landowners at their own expense, whether by private agreement or by the levying of special rates on themselves. Similar cases again are found in the investment of capital by a nation in building up its own social and political organization as well as in promoting the education of the people and in developing its sources of material wealth.

Thus that improvement of the environment, which adds to the value of land and of other free gifts of nature, is in a good many cases partly due to the deliberate investment of capital by the owners of the land for the purpose of raising its value; and therefore a portion of the consequent increase of income may be regarded as profits when we are considering long periods. But in many cases it is not so; and any increase in the net income derived from the free gifts of nature which was not brought about by, and did not supply the direct motive to, any special outlay on the part of the landowners, is to be regarded as rent for all purposes.

Analogous cases in

Cases somewhat analogous to these arise when the owner of a score or more of acres in the neighbourhood of a growing town

[1] Governments have great facilities for carrying out schemes of this kind, especially in the matter of choosing new sites for garrison towns, arsenals, and establishments for the manufacture of the materials of war. In comparisons of the expenses of production by Government and by private firms, the sites of the Government works are often reckoned only at their agricultural value. But such a plan is misleading. A private firm has either to pay heavy annual charges on account of its site, or to run very heavy risks if it tries to make a town for itself. And therefore in order to prove that Government management is for general purposes as efficient and economical as private management, a full charge ought to be made in the balance-sheets of Government factories for the town-value of their sites. In those exceptional branches of production for which a Government can found a manufacturing town without incurring the risks that a private firm would incur in a similar case, that point of advantage may fairly be reckoned as an argument for Governments undertaking those particular businesses.

"develops" them for building. He probably lays out the roads, decides where houses are to be continuous, and where detached; and prescribes the general style of architecture, and perhaps the minimum expenditure on each house; for the beauty of each adds to the general value of all. This collective value, thus created by him, is of the nature of public value; and it is dependent, for the greater part, on that dormant public value, which the site as a whole derived from the growth of a prosperous town in its neighbourhood. But yet that share of it which results from his forethought, constructive faculty and outlay, is to be regarded as the reward of business enterprise, rather than as the appropriation of public value by a private person.

V, XI, 3.

the laying out of suburban property.

These exceptional cases must be reckoned with. But the general rule holds that the amount and character of the building put upon each plot of land is, in the main (subject to the local building bylaws), that from which the most profitable results are anticipated, with little or no reference to its reaction on the situation value of the neighbourhood. In other words the site value of the plot is governed by causes which are mostly beyond the control of him who determines what buildings shall be put on it: and he adjusts his expenditure on it to his estimates of the income to be derived from various descriptions of buildings on it.

But as a rule site value owes little to the owner of the site.

§ 3. The owner of building land sometimes builds on it himself: sometimes he sells it outright: very often he lets it at a fixed ground-rent for ninety-nine years, after which the land and the buildings on it (which by covenant must be kept in good repair) revert to his successor in title. Let us consider what governs the value at which he can sell the land and the ground-rent at which he can let it.

Causes that govern the capital value of building land.

The capitalized value of any plot of land is the actuarial "discounted" value of all the net incomes which it is likely to afford, allowance being made on the one hand for all incidental expenses, including those of collecting the rents, and on the other for its mineral wealth, its capabilities of development for any kind of business, and its advantages, material, social and æsthetic, for the purposes of residence. The money equivalent of that social status and those other personal gratifications which the ownership of land affords, does not appear in the returns of the money income derived from it, but does enter into its capital money value.[1]

[1] The value of agricultural land is commonly expressed as a certain number of times the current money rental, or in other words a certain "number of years' purchase" of that rental: and other things being equal it will be the higher, the more important these direct gratifications are, as well as the greater the chance that they and the money income afforded by the land will rise. The number of

V, xi, 4. Ground-rents for long leases are based on estimates of future true site values.

Next let us consider what governs the "ground-rent" which the owner can obtain for a plot which he lets on, say, a ninety-nine years' building lease. The present discounted value of all the fixed money payments under that lease tends to be equal to the present capital value of the land; after deducting, firstly, for the obligation to return the land with the buildings on it to the successor in title of the present owner at the end of the lease, and secondly for the possible inconvenience of any restrictions on the use of the land contained in the lease. In consequence of these deductions the ground-rent would be rather less than the "annual site value" of the land, if that site value were expected to remain fixed throughout. But in fact the site value is expected to rise in consequence of the growth of population, and other causes: and therefore the ground-rent is generally a little above the annual site value at the beginning of the lease, and much below it towards the end.[1]

Among the estimated outgoings on account of any building, which have to be deducted from its estimated gross yield before deciding what is the value of the privilege of erecting it on any given plot of land, are the taxes (central and local) which may be expected to be levied on the property, and to be paid by the owner of the property. But this raises difficult side-issues, which are postponed to Appendix G.

The relations of marginal costs to the value of the

§ 4. Let us revert to the fact that the law of diminishing return applies to the use of land for the purposes of living and working on it in all trades.[2] Of course in the trade of building, as in agriculture, it is possible to apply capital too thinly. Just as a homesteader

years' purchase would be increased also by an expected fall either in the future normal rate of interest or in the purchasing power of money.

The discounted value of a very distant rise in the value of land is much less than is commonly supposed. For instance, if we take interest at five per cent. (and higher rates prevailed during the Middle Ages), £1 invested at compound interest would amount to about £17,000 in 200 years, and £40,000,000,000 in 500 years. Therefore an expenditure by the State of £1 in securing to itself the reversion of a rise in the value of land which came into operation now for the first time would have been a bad investment, unless the value of that rise now exceeded £17,000, if the payment was made 200 years ago; if 500 years ago to £40,000,000,000. This assumes that it would have been possible to invest a sum of this dimension at five per cent.: which of course it would not.

[1] A few site-values have fallen in districts which have been deserted by fashion or trade. But on the other hand annual site values have risen to be many times as great as the ground-rents in the case of land which was leased when it had no special situation value, but has since become a chief centre of fashion, or of trade: and all the more if the lease was granted in the first half of the eighteenth century, when gold was scarce and the incomes of all classes of the people, measured in money, were very low. The present discounted value of the return of property to the ground landlord a hundred years hence, which will then be worth £1000, is less perhaps than is commonly supposed; though the error is not so great as in the case of anticipations ranging over many hundred years, which were discussed in a recent note: if interest be taken at three per cent. it is about £50; if at five per cent., as was the rule three or four generations ago, it is but £8.

[2] See IV. iii. 7.

may find that he can raise more produce by cultivating only a half of the 160 acres allotted to him than by spreading his labour over the whole, so even when ground has scarcely any value, a very low house may be dear in proportion to its accommodation. But, as in agriculture, there is a certain application of capital and labour to the acre which gives the highest return, and further applications after this give a less return, so it is in building. The amount of capital per acre which gives the maximum return varies in agriculture with the nature of the crops, with the state of the arts of production, and with the character of the markets to be supplied; and similarly in building, the capital per square foot which would give the maximum return, if the site had no scarcity value, varies with the purpose for which the building is wanted. But when the site has a scarcity value, it is worth while to go on applying capital beyond this maximum rather than pay the extra cost of land required for extending the site. In places where the value of land is high, each square foot is made to yield perhaps twice the accommodation, at more than twice the cost, that it would be made to give, if used for similar purposes where the value of land is low.

product and to the rent of the land used are similar in manufacture and agriculture.

We may apply the phrase *the margin of building* to that accommodation which it is only just worth while to get from a given site, and which would not be got from it if land were less scarce. To fix the ideas, we may suppose this accommodation to be given by the top floor of the building.[1]

The margin of building.

By erecting this floor, instead of spreading the building over more ground, a saving in the cost of land is effected, which just compensates for the extra expense and inconvenience of the plan. The accommodation given by this floor, when allowance has been made for its incidental disadvantages, is only just enough to be worth what it costs without allowing anything for the rent of land; and the expenses of production of the things raised on this floor, if it is part of a factory, are just covered by their price; there is no surplus

[1] Houses built in flats are often provided with a lift which is run at the expense of the owner of the house, and in such cases, at all events in America, the top floor sometimes lets for a higher rent than any other. If the site is very valuable and the law does not limit the height of his house in the interest of his neighbours, he may build very high: but at last he will reach the margin of building. At last he will find that the extra expenses for foundations and thick walls, and for his lift, together with some resulting depreciation of the lower floors, make him stand to lose more than he gains by adding one more floor; the extra accommodation which it only just answers his purpose to supply is then to be regarded as at the margin of building, even though the gross rent be greater for the higher floors than for the lower. Compare the footnote on p. 140.

But in England bylaws restrain an individual from building so high as to deprive his near neighbours of air and light. In the course of time those who build high will be forced to have a good deal of free space about their buildings; and this will render very high buildings unprofitable.

V, XI, 5. for the rent of land. The expenses of production of manufactures may then be reckoned as those of the goods which are made on the margin of building, so as to pay no rent for land. That is to say the rent of the land does not enter into that set of expenses at the margin at which the action of the forces of demand and supply in governing value may be most clearly seen.

Suppose, for instance, that a person is planning a hotel or a factory; and considering how much land to take for the purpose. If land is cheap he will take much of it; if it is dear he will take less and build high. Suppose him to calculate the expenses of building and working his establishment with frontages of 100 and 110 feet respectively, in ways equally convenient on the whole to himself, his customers and employees, and therefore equally profitable to himself. Let him find that the difference between the two plans, after capitalizing future expenditure, shows an advantage of £500 in favour of the larger area; he will then be inclined to take the larger if the land is to be got at less than £50 per foot of frontage, but not otherwise; and £50 will be the marginal value of land to him. He might have reached this result by calculating the increased value of the business that could be done with the same outlay in other respects on the larger site as compared with the smaller, or again by building on less expensive ground instead of in a less favourable situation. But, by whatever route he makes his calculation, its character is similar to that by which he decides whether it is worth his while to buy business plant of any other kind: and he regards the net income (allowance being made for depreciation) which he expects to get from either investment as standing in the same general relation to his business; and if the advantages of the situation are such, that all the land available on it can find employments of different kinds in each of which its marginal use is represented by a capital value of £50 per foot of frontage, then that will be the current value of the land.

The competition of factories, warehouses, etc. for the same land.

§ 5. This assumes that the competition for land for various uses will cause building in each locality and for each use to be carried up to that margin, at which it is no longer profitable to apply any more capital to the same site. As the demand for residential and business accommodation in a district increases, it becomes worth while to pay a higher and higher price for land, in order to avoid the expense and inconvenience of forcing more accommodation from the same ground area.

For instance, if the value of land in, say, Leeds rises because of the increased competition for it by shops, warehouses, iron works,

etc.; then a woollen manufacturer finding his expenses of production increased, may move to another town or into the country; and thus leave the land on which he used to work to be built over with shops and warehouses, for which a town situation is more valuable than it is for factories. For he may think that the saving in the cost of land that he will make by moving into the country, together with other advantages of the change, will more than counter-balance its disadvantages. In a discussion as to whether it was worth while to do so, the rental value of the site of his factory would be reckoned among the expenses of production of his cloth; and rightly.

But we have to go behind that fact. The general relations of demand and supply cause production to be carried up to a margin at which the expenses of production (nothing being entered for rent) are so high that people are willing to pay a high value for additional land in order to avoid the inconvenience and expense of crowding their work on to a narrow site. These causes govern site value; and site value is therefore not properly regarded as governing marginal costs.

Thus the industrial demand for land is in all respects parallel to the agricultural. The expenses of production of oats are increased by the fact that land, which could yield good crops of oats, is in great demand for growing other crops that enable it to yield a higher rent: and in the same way the printing-presses, which may be seen at work in London some sixty feet above the ground, could afford to do their work a little cheaper if the demand for ground for other uses did not push the margin of building up so high. Again, a hop-grower may find that on account of the high rent which he pays for his land, the price of his hops will not cover their expenses of production where he is, and he may abandon hop-growing, or seek other land for it; while the land that he leaves may perhaps be let to a market-gardener. After a while the demand for land in the neighbourhood may again become so great that the aggregate price which the market-gardener obtains for his produce will not pay its expenses of production, including rent; and so he in his turn makes room for, say, a building company.

In each case the rising demand for land alters the margin to which it is profitable to carry the intensive use of land: the costs at this margin indicate the action of those fundamental causes which govern the value of the land. And at the same time they are themselves those costs to which the general conditions of demand and supply compel value to conform: and therefore it is right for our purpose to go straight to them; though any such inquiry would be irrelevant to the purposes of a private balance sheet.

V, XI, 6.

The rents of traders in relation to their prices.

§ 6. The demand for exceptionally valuable urban land comes from traders of various kinds, wholesale and retail, more than from manufacturers; and it may be worth while to say something here as to the very interesting features of demand that are peculiar to their case.

If two factories in the same branch of trade have equal outputs they are sure to have nearly equal floor space. But there is no close relation between the size of trading establishments and their turn-overs. Plenty of space is for them a matter of convenience and a source of extra profit. It is not physically indispensable; but the larger their space, the greater the stock which they can keep on hand, and the greater the advantage to which they can display specimens of it; and especially is this the case in trades that are subject to changes of taste and fashion. In such trades the dealers exert themselves to collect within a comparatively small space representatives of all the best ideas that are in vogue, and still more of those that are likely soon to be so; and the higher the rental values of their sites the more prompt they must be in getting rid, even at a loss, of such things as are a little behind the time and do not improve the general character of their stocks. If the locality is one in which customers are more likely to be tempted by a well-chosen stock than by low prices, the traders will charge prices that give a high rate of profit on a comparatively small turn-over: but, if not, they will charge low prices and try to force a large business in proportion to their capital and the size of their premises; just as in some neighbourhoods the market-gardener finds it best to gather his peas young when they are full of flavour, and in others to let them grow till they weigh heavily in the scales. Whichever plan the traders follow, there will be some conveniences which they are in doubt whether it is worth while to offer to the public; since they calculate that the extra sales gained by such conveniences are only just remunerative, and do not contribute any surplus towards rent. The goods which they sell in consequence of these conveniences, are goods into whose expenses of marketing rent does not enter any more than it does into those of the peas which the market-gardener only just finds it worth his while to produce.

Prices are low in some very highly-rented shops, because their doors are passed by great numbers of people who cannot afford to pay high prices for the gratification of their fancy; and the shop-keeper knows that he must sell cheaply, or not sell at all. He has to be content with a low rate of profit each time he turns over his capital. But, as the wants of his customers are simple, he need not

keep a large stock of goods; and he can turn over his capital many times a year. So his annual net profits are very great, and he is willing to pay a very high rent for the situation in which they can be earned. On the other hand, prices are very high in some of the quiet streets in the fashionable parts of London and in many villages; because in the one case customers must be attracted by a very choice stock, which can only be sold slowly; and in the other the aggregate turn-over is very small indeed. In neither place can the trader make profits that will enable him to pay as high a rent as those of some cheap but bustling shops in the East end of London.

A rise of ground values may be an indication of a scarcity of space that will tend to raise traders' prices.

It is however true that, if without any increase in traffic such as brings extra custom, a situation becomes more valuable for purposes other than shopkeeping; then only those shopkeepers will be able to pay their way who can manage to secure a large custom relatively to the prices which they charge and the class of business which they do. There will therefore be a smaller supply of shopkeepers in all trades for which the demand has not increased: and those who remain, will be able to charge a higher price than before, without offering any greater conveniences and attractions to their customers. The rise of ground values in the district will thus be an indication of a scarcity of space which, other things being equal, will raise the prices of retail goods; just in the same way as the rise of agricultural rents in any district will indicate a scarcity of land which will raise the marginal expenses of production, and therefore the price of any particular crop.

The component elements of composite rent can be distinguished in some but not in all cases.

§ 7. The rent of a house (or other building) is a composite rent, of which one part belongs to the site and the other to the buildings themselves. The relations between these two are rather intricate, and may be deferred to Appendix G. A few words may however be said here as to composite rents in general. At starting there may appear to be some contradiction in the statement that a thing is yielding at the same time two rents: for its rent is in some sense a residual income after deducting the expenses of working it; and there cannot be two residues in regard to the same process of working and the same resulting revenue. But when the thing is composite each of its parts may be capable of being so worked as to yield a surplus of revenue over the expenses of working it. The corresponding rents can always be distinguished analytically, and sometimes they can be separated commercially.[1]

[1] It will be borne in mind that if a house is not appropriate to its site, its aggregate rent will not exceed its site rent by the full building rent which the house would command on an appropriate site. Similar limitations apply to most composite rents.

V, XI, 7. For instance, the rent of a flour-mill worked by water includes the rent of the site on which it is built, and the rent of the water power which it uses. Suppose that it is contemplated to build a mill in a place where there is a limited water power which could be applied equally well on any one of many sites; then the rent of the water power together with the site selected for it is the sum of two rents; which are respectively the equivalent of the differential advantages which possession of the site gives for production of any kind, and which the ownership of the water power gives for working a mill on any of the sites. And these two rents, whether they happen to be owned by the same person or not, can be clearly distinguished and separately estimated both in theory and in practice.

But this cannot be done if there are no other sites on which a mill can be built: and in that case, should the water power and the site belong to different persons, there is nothing but "higgling and bargaining" to settle how much of the excess of the value of the two together over that which the site has for other purposes shall go to the owner of the latter. And even if there were other sites at which the water power could be applied, but not with equal efficiency, there would still be no means of deciding how the owners of the site and the water power should share the excess of the producer's surplus which they got by acting together, over the sum of that which the site would yield for some other purpose, and of that which the water power would yield if applied elsewhere. The mill would probably not be put up till an agreement had been made for the supply of water power for a term of years: but at the end of that term similar difficulties would arise as to the division of the aggregate producer's surplus afforded by the water power and the site with the mill on it.

Difficulties of this kind are continually arising with regard to attempts by partial monopolists, such as railway, gas, water and electrical companies, to raise their charges on the consumer who has adapted his business arrangements to make use of their services, and perhaps laid down at his own expense a costly plant for the purpose. For instance, at Pittsburgh when manufacturers had just put up furnaces to be worked by natural gas instead of coal, the price of the gas was suddenly doubled. And the history of mines affords many instances of difficulties of this kind with neighbouring landowners as to rights of way, etc., and with the owners of neighbouring cottages, railways and docks.[1]

[1] The relations between the interests of different classes of workers in the same business and in the same trade, have some affinity to the subject of composite rents. See below VI. VIII. 9, 10.

CHAPTER XII

EQUILIBRIUM OF NORMAL DEMAND AND SUPPLY, CONTINUED, WITH REFERENCE TO THE LAW OF INCREASING RETURN

§ 1. We may now continue the study begun in chapters III. and V.; and examine some difficulties connected with the relations of demand and supply as regards commodities the production of which tends to increasing return.

The tendency to increasing return does not act quickly.

We have noted that this tendency seldom shows itself immediately on an increase of demand. To take an example, the first effect of a sudden fashion for watch-shaped aneroids would be a temporary rise of price, in spite of the fact that they contain no material of which there is but a scanty stock. For highly paid labour, that had no special training for the work, would have to be drawn in from other trades; a good deal of effort would be wasted, and for a time the real and the money cost of production would be increased.

But yet, if the fashion lasted a considerable time, then even independently of any new invention, the cost of making aneroids would fall gradually. For specialized skill in abundance would be trained, and properly graduated to the various work to be done. With a large use of the method of interchangeable parts, specialized machinery would do better and more cheaply much of the work that is now done by hand; and thus a continued increase in the annual output of watch-shaped aneroids would lower their price very much.

Differences between demand and supply in regard to elasticity.

Here there is to be noted an important difference between demand and supply. A fall in the price, at which a commodity is offered, acts on demand always in one direction. The amount of the commodity demanded may increase much or little according as the demand is elastic or inelastic: and a long or short time may be required for developing the new and extended uses of the commodity, which are rendered possible by the fall in price.[1] But—at all events if exceptional cases in which a thing is driven out of fashion by a fall in its price be neglected—the influence of price on demand is similar in character for all commodities: and, further, those demands which

[1] See above III. IV. 5.

V, XII, 2.

show high elasticity in the long run, show a high elasticity almost at once; so that, subject to a few exceptions, we may speak of the demand for a commodity as being of high or low elasticity without specifying how far we are looking ahead.

Elasticity of supply.

But there are no such simple rules with regard to supply. An increase in the price offered by purchasers does indeed always increase supply: and thus it is true that, if we have regard to short periods only, and especially to the transactions of a dealer's market, there is an "elasticity of supply" which corresponds closely to elasticity of demand. That is to say, a given rise in price will cause a great or a small increase in the offers which sellers accept, according as they have large or small reserves in the background, and as they have formed low or high estimates of the level of prices at the next market: and this rule applies nearly in the same way to things which in the long run have a tendency to diminishing return as to those which have a tendency to increasing return. In fact if the large plant needed in a branch of manufacture is fully occupied, and cannot be rapidly increased, an increase in the price offered for its products may have no perceptible effect in increasing the output for some considerable time: while a similar increase in the demand for a hand-made commodity might call forth quickly a great increase in supply, though in the long run its supply conformed to that of constant return or even of diminishing return.

In the more fundamental questions which relate to long periods, the matter is even more complex. For the ultimate output corresponding to an unconditional demand at even current prices would be theoretically infinite; and therefore the elasticity of supply of a commodity which conforms to the law of Increasing Return, or even to that of Constant Return, is theoretically infinite for long periods.[1]

We must distinguish the economies of a whole industry and of an individual firm.

§ 2. The next point to be observed is that this tendency to a fall in the price of a commodity as a result of a gradual development of the industry by which it is made, is quite a different thing from the tendency to the rapid introduction of new economies by an individual firm that is increasing its business.

We have seen how every step in the advance of an able and enterprising manufacturer makes the succeeding step easier and more

[1] Strictly speaking, the amount produced and the price at which it can be sold, are functions one of another, account being taken of the length of time allowed for the evolution of appropriate plant and organization for production on a large scale. But in real life, the cost of production per unit is deduced from the amount expected to be produced, and not *vice versâ*. Economists commonly follow this practice; and they follow also the practice of business life in inverting this order with regard to demand. That is, they consider the increase of sales that will follow from a given reduction of price, more frequently than the diminution of price which will be required to effect a given increase of sales.

rapid; so that his progress upwards is likely to continue so long as he has fairly good fortune, and retains his full energy and elasticity and his liking for hard work. But these cannot last for ever: and as soon as they decay, his business is likely to be destroyed through the action of some of those very causes which enabled it to rise; unless indeed he can pass it over into hands as strong as his used to be. Thus the rise and fall of individual firms may be frequent, while a great industry is going through one long oscillation, or even moving steadily forwards; as the leaves of a tree (to repeat an earlier illustration) grow to maturity, reach equilibrium, and decay many times, while the tree is steadily growing upwards year by year.[1]

Facilities for increased production often opposed by difficulties of marketing.

The causes which govern the facilities for production at the command of a single firm, thus conform to quite different laws from those which control the whole output of an industry. And the contrast is perhaps heightened, when we take the difficulties of marketing into account. For instance, manufactures, which are adapted to special tastes, are likely to be on a small scale; and they are generally of such a character that the machinery and modes of organization already developed in other trades, could be easily adapted to them; so that a great increase in their scale of production would be sure to introduce vast economies at once. But these are the very industries in which each firm is likely to be confined more or less to its own particular market; and, if it is so confined, any hasty increase in its production is likely to lower the demand price in that market out of all proportion to the increased economies that it will gain; even though its production is but small relatively to the broad market for which in a more general sense it may be said to produce.

In fact, when trade is slack, a producer will often try to sell some of his surplus goods outside of his own particular market at prices that do little more than cover their prime costs: while within that market he still tries to sell at prices that nearly cover supplementary costs; and a great part of these are the returns expected on capital invested in building up the external organization of his business.[2]

Again supplementary costs are, as a rule, larger relatively to prime costs for things that obey the law of increasing return than for other things[3]; because their production needs the investment of a

[1] See IV. ix.-xiii.; and especially xi. 5.

[2] This may be expressed by saying that when we are considering an individual producer, we must couple his supply curve—not with the general demand curve for his commodity in a wide market, but—with the particular demand curve of his own special market. And this particular demand curve will generally be very steep; perhaps as steep as his own supply curve is likely to be, even when an increased output will give him an important increase of internal economies.

[3] Of course this rule is not universal. It may be noted, for instance, that the net loss of an omnibus, that is short of passengers throughout its trip, and loses a

V, XII, 3. large capital in material appliances and in building up trade connections. This increases the intensity of those fears of spoiling his own peculiar market, or incurring odium from other producers for spoiling the common market; which we have already learnt to regard as controlling the short-period supply price of goods, when the appliances of production are not fully employed.

We cannot then regard the conditions of supply by an individual producer as typical of those which govern the general supply in a market. We must take account of the fact that very few firms have a long-continued life of active progress, and of the fact that the relations between the individual producer and his special market differ in important respects from those between the whole body of producers and the general market.[1]

The solution of the difficulty is in the action of a representative firm.

§ 3. Thus the history of the individual firm cannot be made into the history of an industry any more than the history of an individual man can be made into the history of mankind. And yet the history of mankind is the outcome of the history of individuals; and the aggregate production for a general market is the outcome of the motives which induce individual producers to expand or contract their production. It is just here that our device of a representative

fourpenny fare, is nearer fourpence than threepence, though the omnibus trade conforms perhaps to the law of constant return. Again, if it were not for the fear of spoiling his market, the Regent Street shoemaker, whose goods are made by hand, but whose expenses of marketing are very heavy, would be tempted to go further below his normal price in order to avoid losing a special order, than a shoe manufacturer who uses much expensive machinery and avails himself generally of the economies of production on a large scale. There are other difficulties connected with the supplementary costs of joint products, *e.g.* the practice of selling some goods at near prime cost, for the purpose of advertisement (see above V. VII. 2). But these need not be specially considered here.

[1] Abstract reasonings as to the effects of the economies in production, which an individual firm gets from an increase of its output are apt to be misleading, not only in detail, but even in their general effect. This is nearly the same as saying that in such case the conditions governing supply should be represented in their totality. They are often vitiated by difficulties which lie rather below the surface, and are especially troublesome in attempts to express the equilibrium conditions of trade by mathematical formulæ. Some, among whom Cournot himself is to be counted, have before them what is in effect the supply schedule of an individual firm; representing that an increase in its output gives it command over so great internal economies as much to diminish its expenses of production; and they follow their mathematics boldly, but apparently without noticing that their premises lead inevitably to the conclusion that, whatever firm first gets a good start will obtain a monopoly of the whole business of its trade in its district. While others avoiding this horn of the dilemma, maintain that there is no equilibrium at all for commodities which obey the law of increasing return; and some again have called in question the validity of any supply schedule which represents prices diminishing as the amount produced increases. See Mathematical Note XIV., where reference is made to this discussion.

The remedy for such difficulties as these is to be sought in treating each important concrete case very much as an independent problem, under the guidance of staple general reasonings. Attempts so to enlarge the *direct* applications of general propositions as to enable them to supply adequate solutions of all difficulties, would make them so cumbrous as to be of little service for their main work. The "principles" of economics must aim at affording guidance to an entry on problems of life, without making claim to be a substitute for independent study and thought.

firm comes to our aid. We imagine to ourselves at any time a firm that has its fair share of those internal and external economies, which appertain to the aggregate scale of production in the industry to which it belongs. We recognize that the size of such a firm, while partly dependent on changes in technique and in the costs of transport, is governed, other things being equal, by the general expansion of the industry. We regard the manager of it as reckoning up whether it would be worth his while to add a certain new line to his undertakings; whether he should introduce a certain new machine and so on. We regard him as treating the output which would result from that change more or less as a unit, and weighing in his mind the cost against the gain.[1]

We thus get at the true long-period marginal cost, falling with a gradual increase of demand.

This then is the marginal cost on which we fix our eyes. We do not expect it to fall immediately in consequence of a sudden increase of demand. On the contrary we expect the short-period supply price to increase with increasing output. But we also expect a gradual increase in demand to increase gradually the size and the efficiency of this representative firm; and to increase the economies both internal and external which are at its disposal.

That is to say, when making lists of supply prices (supply schedules) for long periods in these industries, we set down a diminished supply price against an increased amount of the flow of the goods; meaning thereby that a flow of that increased amount will in the course of time be supplied profitably at that lower price, to meet a fairly steady corresponding demand. We exclude from view any economies that may result from substantive new inventions; but we include those which may be expected to arise naturally out of adaptations of existing ideas; and we look towards a position of balance or equilibrium between the forces of progress and decay, which would be attained if the conditions under view were supposed to act uniformly for a long time. But such notions must be taken broadly. The attempt to make them precise over-reaches our strength. If we include in our account nearly all the conditions of real life, the problem is too heavy to be handled; if we select a few, then long-drawn-out and subtle reasonings with regard to them become scientific toys rather than engines for practical work.

The pure theory in its earlier stages diverges but little from actual

The theory of stable equilibrium of normal demand and supply helps indeed to give definiteness to our ideas; and in its elementary stages it does not diverge from the actual facts of life, so far as to prevent its giving a fairly trustworthy picture of the chief methods of action of the strongest and most persistent group of economic

[1] See above V. v. 6.

V, XII, 3.

facts; but if pushed far its practical value rapidly diminishes.

forces. But when pushed to its more remote and intricate logical consequences, it slips away from the conditions of real life. In fact we are here verging on the high theme of economic progress; and here therefore it is especially needful to remember that economic problems are imperfectly presented when they are treated as problems of statical equilibrium, and not of organic growth. For though the statical treatment alone can give us definiteness and precision of thought, and is therefore a necessary introduction to a more philosophic treatment of society as an organism, it is yet only an introduction.

The Statical theory of equilibrium is only an introduction to economic studies; and it is barely even an introduction to the study of the progress and development of industries which show a tendency to increasing return. Its limitations are so constantly overlooked, especially by those who approach it from an abstract point cf view, that there is a danger in throwing it into definite form at all. But, with this caution, the risk may be taken; and a short study of the subject is given in Appendix H.

CHAPTER XIII

THEORY OF CHANGES OF NORMAL DEMAND AND SUPPLY IN RELATION TO THE DOCTRINE OF MAXIMUM SATISFACTION

Transition to substantive changes in the condition of demand and supply.

§ 1. In earlier chapters of this Book, and especially in chapter XII., we have considered gradual changes in the adjustment of demand and supply. But any great and lasting change in fashion; any substantive new invention; any diminution of population by war or pestilence; or the development or dwindling away of a source of supply of the commodity in question, or of a raw material used in it, or of another commodity which is a rival and possible substitute for it:—such a change as any of these may cause the prices set against any given annual (or daily) consumption and production of the commodity to cease to be its normal demand and supply prices for that volume of consumption and production; or, in other words, they may render it necessary to make out a new demand schedule or a new supply schedule, or both of them. We proceed to study the problems thus suggested.

What is meant by an increase of normal demand,

An increase of normal demand for a commodity involves an increase in the price at which each several amount can find purchasers; or, which is the same thing, an increase of the quantity which can find purchasers at any price. This increase of demand may be caused by the commodity's coming more into fashion, by the opening out of a new use for it or of new markets for it, by the permanent falling off in the supply of some commodity for which it can be used as a substitute, by a permanent increase in the wealth and general purchasing power of the community, and so on. Changes in the opposite direction will cause a falling off in demand and a sinking of the demand prices. Similarly an increase of normal supply means an increase of the amounts that can be supplied at each several price, and a diminution of the price at which each separate amount can be supplied.[1] This change may be caused

or of normal supply.

[1] A rise or fall of the demand or supply prices involves of course a rise or fall of the demand or supply curve.

If the change is gradual, the supply curve will assume in succession a series of positions, each of which is a little below the preceding one; and in this way we might have represented the effects of that gradual improvement of industrial organization which arises from an increase in the scale of production, and which we have represented by assigning to it an influence upon the supply price for long-

V, XIII, 2. by the opening up of a new source of supply, whether by improved means of transport or in any other way, by an advance in the arts of production, such as the invention of a new process or of new machinery, or again, by the granting of a bounty on production. Conversely, a diminution of normal supply (or a raising of the supply schedule) may be caused by the closing up of a new source of supply or by the imposition of a tax.

Effects of an increase of normal demand.

§ 2. We have, then, to regard the effects of an increase of normal demand from three points of view, according as the commodity in question obeys the law of constant or of diminishing or of increasing return: that is, its supply price is practically constant for all amounts, or increases or diminishes with an increase in the amount produced.

In the first case an increase of demand simply increases the amount produced without altering its price; for the normal price of a commodity which obeys the law of constant return is determined absolutely by its expenses of production: demand has no influence in the matter beyond this, that the thing will not be produced at all unless there is some demand for it at this fixed price.

If the commodity obeys the law of diminishing return an increase of demand for it raises its price and causes more of it to be produced; but not so much more as if it obeyed the law of constant return.

On the other hand, if the commodity obeys the law of increasing return, an increase of demand causes much more of it to be produced—more than if the commodity obeyed the law of constant return—and at the same time lowers its price. If, for instance, a thousand things of a certain kind have been produced and sold weekly at a price of 10*s.*, while the supply price for two thousand weekly would be only 9*s.*, a small rate of increase in normal demand may gradually cause this to become the normal price; since we are considering periods long enough for the full normal action of the causes that determine supply to work itself out. The converse holds in each case should normal demand fall off instead of increasing.[1]

period curves. In an ingenious paper privately printed by Sir H. Cunynghame, a suggestion is made, which seems to come in effect to proposing that a long-period supply curve should be regarded as in some manner representing a series of short-period curves; each of these curves would assume throughout its whole length that development of industrial organization which properly belongs to the scale of production represented by the distance from *Oy* of the point in which that curve cuts the long-period supply curve (compare Appendix H, 3) and similarly with regard to demand.

[1] Diagrams are of especial aid in enabling us to comprehend clearly the problems of this chapter.

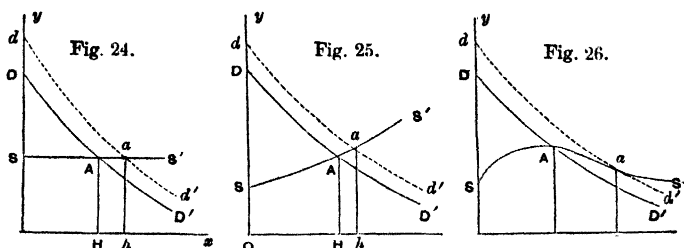
The three figures 24, 25, 26 represent the three cases of constant, diminishing and increasing return respectively. The return in the last case is a diminishing

Protection to nascent industries.

The argument of this section has been thought by some writers to lend support to the claim that a Protective duty on manufactured imports in general increases the home market for those imports; and, by calling into play the Law of Increasing Return, *ultimately* lowers their price to the home consumer. Such a result may indeed ultimately be reached by a wisely chosen system of "Protection to nascent industries" in a new country; where manufactures, like young children, have a power of rapid growth. But even there the policy is apt to be wrenched from its proper uses, to the enrichment of particular interests: for those industries which can send the greatest number of votes to the poll, are those which are already on so large a scale, that a further increase would bring very few new economies. And of course the industries in a country so long familiar with machinery as England is, have generally passed the stage at which they can derive much real help from such Protection: while Protection to any one industry nearly always tends to narrow the markets, especially the foreign markets, for other industries. These few remarks show that the question is complex: they do not pretend to reach farther than that.

Effects of increased facilities of supply.

§ 3. We have seen that an increase in normal demand, while leading in every case to an increased production, will in some cases raise and in others lower prices. But now we are to see that increased facilities for supply (causing the supply schedule to be lowered) will always lower the normal price at the same time that it

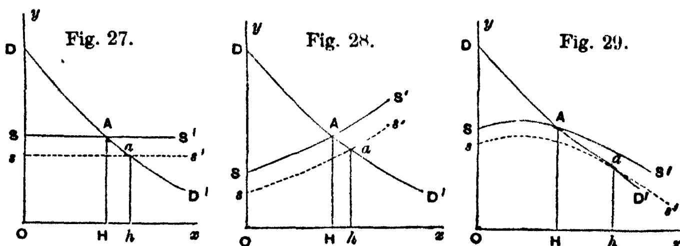


one in the earlier stages of the increase of production, but an increasing one in those subsequent to the attainment of the original position of equilibrium, *i.e.* for amounts of the commodity greater than *OH*. In each case *SS'* is the supply curve, *DD'* the old position of the demand curve, and *dd'* its position after there has been increase of normal demand. In each case *A* and *a* are the old and new positions of equilibrium respectively, *AH* and *ah* are the old and new normal or equilibrium prices, and *OH* and *Oh* the old and new equilibrium amounts. *Oh* is in every case greater than *OH*, but in fig. 25 it is only a little greater, while in fig. 26 it is much greater. (This analysis may be carried further on the plan adopted later on in discussing the similar but more important problem of the effects of changes in the conditions of normal supply.) In fig. 24 *ah* is equal to *AH*, in fig. 25 it is greater, in fig. 26 it is less.

The effect of a falling-off of normal demand can be traced with the same diagrams, *dd'* being now regarded as the old and *DD'* as the new position of this demand curve; *ah* being the old equilibrium price, and *AH* the new one.

V, XIII, 3. leads to an increase in the amount produced. For so long as the normal demand remains unchanged an increased supply can be sold only at a diminished price; but the fall of price consequent on a given increase of supply will be much greater in some cases than in others. It will be small if the commodity obeys the law of diminishing return; because then the difficulties attendant on an increased production will tend to counteract the new facilities of supply. On the other hand, if the commodity obeys the law of increasing return, the increased production will bring with it increased facilities, which will co-operate with those arising from the change in the general conditions of supply; and the two together will enable a great increase in production and consequent fall in price to be attained before the fall of the supply price is overtaken by the fall of the demand price. If it happens that the demand is very elastic, then a small increase in the facilities of normal supply, such as a new invention, a new application of machinery, the opening up of new and cheaper sources of supply, the taking off a tax or granting a bounty, may cause an enormous increase of production and fall of price.[1]

[1] All this can be most clearly seen by the aid of diagrams, and indeed there are some parts of the problem which cannot be satisfactorily treated without their aid. The three figures 27, 28, 29 represent the three cases of constant and diminishing and increasing returns, respectively. In each case DD' is the demand curve, SS' the old position, and ss' the new position of the supply curve. A is the old, and a the new position of stable equilibrium. Oh is greater than OH, and ah is less than AH in every case: but the changes are small in fig. 28 and great in fig. 29. Of course the demand curve must lie below the old supply curve to the right of A, otherwise A would be a point not of stable, but of unstable equilibrium. But subject to this



condition the more elastic the demand is, that is, the more nearly horizontal the demand curve is at A the further off will a be from A, and the greater therefore will be the increase of production and the fall of price.

The whole result is rather complex. But it may be stated thus. Firstly, given the elasticity of demand at A, the increase in the quantity produced and the fall in price will both be the greater, the greater be the return got from additional capital and labour applied to the production. That is, they will be the greater, the more nearly horizontal the supply curve is at A in fig. 28, and the more steeply inclined it is in fig. 29 (subject to the condition mentioned above, that it does not lie below the demand curve to the right of A, and thus turn A into a position of unstable equilibrium). Secondly, given the position of the supply curve at A, the greater the elasticity of demand the greater will be the increase of production in every case; but the smaller will be the fall of price in fig. 28, and the greater the fall of price in fig. 29. Fig. 27 may be regarded as a limiting case of either fig. 28 or 29.

V, XIII, 4.

If we take account of the circumstances of composite and joint supply and demand discussed in chapter VI., we have suggested to us an almost endless variety of problems which can be worked out by the methods adopted in these two chapters.

Changes that raise or lower the supply schedule may be represented by a tax or bounty.

§ 4. We may now consider the effects which a change in the conditions of supply may exert on consumers' surplus or rent. For brevity of language a tax may be taken as representative of those changes which may cause a general increase, and a bounty as representative of those which may cause a general diminution in the normal supply price for each several amount of the commodity.

The case of constant return.

Firstly, if the commodity is one, the production of which obeys the law of constant return, so that the supply price is the same for all amounts of the commodity, consumers' surplus will be diminished by more than the increased payments to the producer; and therefore, in the special case of a tax, by more than the gross receipts of the State. For on that part of the consumption of the commodity, which is maintained, the consumer loses what the State receives: and on that part of the consumption which is destroyed by the rise in price, the consumers' surplus is destroyed; and of course there is no payment for it to the producer or to the State.[1] Conversely, the gain of consumers' surplus caused by a bounty on a commodity that obeys the law of constant return, is less than the bounty itself. For on that part of the consumption which existed

All this reasoning assumes that the commodity either obeys the law of diminishing return or obeys the law of increasing return throughout. If it obeys first one, and then the other, so that the supply curve is at one part inclined positively and at another negatively, no general rule can be laid down as to the effect on price of increased facilities of supply, though in every case this must lead to an increased volume of production. A great variety of curious results may be got by giving the supply curve different shapes, and in particular such as cut the demand curve more than once.

This method of inquiry is not applicable to a tax on wheat in so far as it is consumed by a labouring class which spends a great part of its income on bread; and it is not applicable to a general tax on all commodities: for in neither of these cases can it be assumed that the marginal value of money to the individual remains approximately the same after the tax has been levied as it was before.

[1] This is most clearly seen by aid of a diagram. SS', the old constant return supply curve, cuts DD' the demand curve in A: DSA is the consumers' surplus. Afterwards a tax Ss being imposed the new equilibrium is found at a, and consumers' surplus is Dsa. The gross tax is only the rectangle $sSKa$, that is, a tax at the rate of Ss on an amount sa of the commodity. And this falls short of the loss of consumers' surplus by the area aKA. The net loss aKA is small or great, other things being equal, as aA is or is not inclined steeply. Thus it is smallest for those commodities the demand for which is most inelastic, that is, for necessaries. If therefore a given aggregate taxation has to be levied ruthlessly from any class it will cause less loss of consumers' surplus if levied on necessaries than if levied on comforts; though of course the consumption of luxuries and in a less degree of comforts indicates ability to bear taxation.

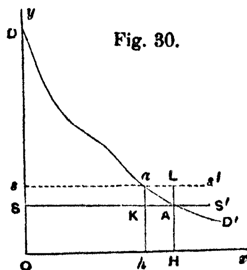


Fig. 30.

V, xiii, 4.

before the bounty, consumers' surplus is increased by just the amount of the bounty; while on the new consumption that is caused by the bounty, the gain of the consumers' surplus is less than the bounty.[1]

The case of diminishing return.

If however the commodity obeys the law of diminishing return, a tax by raising its price, and diminishing its consumption, will lower its expenses of production other than the tax: and the result will be to raise the supply price by something less than the full amount of the tax. In this case the gross receipts from the tax *may* be greater than the resulting loss of consumers' surplus, and they *will* be greater if the law of diminishing return acts so sharply that a small diminution of consumption causes a great falling-off in the expenses of production other than the tax.[2]

On the other hand, a bounty on a commodity which obeys the law of diminishing return will lead to increased production, and will extend the margin of cultivation to places and conditions in which the expenses of production, exclusive of the bounty, are greater than before. Thus it will lower the price to the consumer and increase consumers' surplus less than if it were given for the production of a commodity which obeyed the law of constant return. In that case the increase of consumers' surplus was seen to be less than the direct cost of the bounty to the State; and therefore in this case it is much less.[3]

[1] If we now regard ss' as the old supply curve which is lowered to the position SS' by the granting of a bounty, we find the gain of consumers' surplus to be $sSAa$. But the bounty paid is Ss on an amount SA, which is represented by the rectangle $sSAL$: and this exceeds the gain of consumers' surplus by the area aLA.

Fig. 31.

[2] Let the old supply curve be SS' fig. 31, and let the imposition of a tax raise it to ss'; let A and a be the old and new positions of equilibrium, and let straight lines be drawn through them parallel to Ox and Oy, as in the figure. Then the tax being levied, as shown by the figure, at the rate of aE on each unit; and Oh, that is, CK units, being produced in the new position of equilibrium, the gross receipts of the tax will be $cFEa$, and the loss of consumers' surplus will be $cCAa$; that is, the gross receipts from the tax will be greater or less than the loss of consumers' surplus as $CFEK$ is greater or less than aKA; and in the figure as it stands it is much greater. If SS' had been so drawn as to indicate only very slight action of the law of diminishing return, that is, if it had been nearly horizontal in the neighbourhood of A, then EK would have been very small; and $CFEK$ would have become less than aKA.

[3] To illustrate this case we may take ss' in fig. 31 to be the position of the supply curve before the granting of the bounty, and SS' to be its position afterwards. Thus a was the old equilibrium point, and A is the point to which the equilibrium moves when the bounty is awarded. The increase of consumers' surplus is only $cCAa$, while the payments made by the State under the bounty are, as shown by the figure, at the rate of AT on each unit of the commodity; and as in the new position of equilibrium there are produced OH, that is, CA units, they amount altogether to $RCAT$ which includes and is necessarily greater than the increase of consumers' surplus.

The case of increasing return.

By similar reasoning it may be shown that a tax on a commodity which obeys the law of increasing return is more injurious to the consumer than if levied on one which obeys the law of constant return. For it lessens the demand and therefore the output. It thus probably increases the expenses of manufacture somewhat: sends up the price by more than the amount of the tax; and finally diminishes consumers' surplus by much more than the total payments which it brings in to the exchequer.[1] On the other hand, a bounty on such a commodity causes so great a fall in its price to the consumer, that the consequent increase of consumers' surplus may exceed the total payments made by the State to the producers; and certainly will do so in case the law of increasing return acts at all sharply.[2]

These results throw light on the doctrine of maximum satisfaction.

These results are suggestive of some principles of taxation which require careful attention in any study of financial policy; when it will be necessary to take account of the expenses of collecting a tax and of administering a bounty, and of the many indirect effects, some economic and some moral, which a tax or a bounty is likely to produce. But these partial results are well adapted for our immediate purpose of examining a little more closely than we have done hitherto the general doctrine that a position of (stable) equilibrium of demand and supply is a position also of *maximum satisfaction*: and there is one abstract and trenchant form of that doctrine which has had much vogue, especially since the time of

[1] Thus taking SS' in fig. 32 to be the old position of the supply curve, and ss' its position after the tax, A to be the old and a the new positions of equilibrium, we have, as in the case of fig. 31, the total tax represented by $cFEa$, and the loss of consumers' surplus by $cCAa$; the former being always less than the latter.

The statement in the text is put broadly and in simple outline. If it were applied to practical problems account would need to be taken of several considerations which have been ignored. An industry which yields an increasing return, is nearly sure to be growing, and therefore to be acquiring new economies of production on a large scale. If the tax is a small one, it may merely retard this growth and not cause a positive shrinking. Even if the tax is heavy and the industry shrinks, many of the economies gained will be in part at least preserved; as is explained above in Appendix H. In consequence ss' ought properly not to have the same shape as SS', and the distance aE ought to be less than AT.

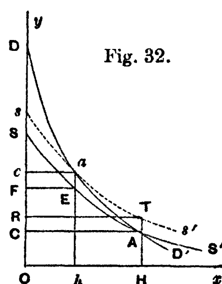


Fig. 32.

[2] To illustrate this case we may take ss' in fig. 32 to be the position of the supply curve before the granting of the bounty, and SS' to be its position afterwards. Then, as in the case of fig. 31, the increase of consumers' surplus is represented by $cCAa$, while the direct payments made by the State under the bounty are represented by $RCAT$. As the figure is drawn, the former is much larger than the latter. But it is true that if we had drawn ss' so as to indicate a very slight action of the law of increasing return, that is, if it had been very nearly horizontal in the neighbourhood of a, the bounty would have increased relatively to the gain of consumers' surplus; and the case would have differed but little from that of a bounty on a commodity which obeys the law of constant return, represented in fig. 30.

V, XIII, 5. Bastiat's *Economic Harmonics*, and which falls within the narrow range of the present discussion.

There is a limited sense in which the doctrine is generally true.

§ 5. There is indeed one interpretation of the doctrine according to which every position of equilibrium of demand and supply may fairly be regarded as a position of maximum satisfaction.[1] For it is true that so long as the demand price is in excess of the supply price, exchanges can be effected at prices which give a surplus of satisfaction to buyer or to seller or to both. The marginal utility of what he receives is greater than that of what he gives up, to at least one of the two parties; while the other, if he does not gain by the exchange, yet does not lose by it. So far then every step in the exchange increases the aggregate satisfaction of the two parties. But when equilibrium has been reached, demand price being now equal to supply price, there is no room for any such surplus: the marginal utility of what each receives no longer exceeds that of what he gives up in exchange: and when the production increases beyond the equilibrium amount, the demand price being now less than the supply price, no terms can be arranged which will be acceptable to the buyer, and will not involve a loss to the seller.

It is true then that a position of equilibrium of demand and supply is a position of maximum satisfaction in this limited sense, that the aggregate satisfaction of the two parties concerned increases until that position is reached; and that any production beyond the equilibrium amount could not be permanently maintained so long as buyers and sellers acted freely as individuals, each in his own interest.

But when not taken in this limited sense, the doctrine is open to great exceptions.

But occasionally it is stated, and very often it is implied, that a position of equilibrium of demand and supply is one of maximum aggregate satisfaction in the full sense of the term: that is, that an increase of production beyond the equilibrium level would directly (*i.e.* independently of the difficulties of arranging for it, and of any indirect evils it might cause) diminish the aggregate satisfaction of both parties. The doctrine so interpreted is not universally true.

It assumes that equal sums of money measure equal utilities to all concerned;

In the first place it assumes that all differences in wealth between the different parties concerned may be neglected, and that the satisfaction which is rated at a shilling by any one of them, may be taken as equal to one that is rated at a shilling by any other. Now it is obvious that, if the producers were as a class very much poorer than the consumers, the aggregate satisfaction might be increased by a stinting of supply when it would cause a great rise in demand price (*i.e.* when the demand is inelastic); and that if the consumers were

[1] Compare V. I. 1. Unstable equilibrium may now be left out of account.

as a class much poorer than the producers, the aggregate satisfaction might be increased by extending the production beyond the equilibrium amount and selling the commodity at a loss.[1]

This point however may well be left for future consideration. It is in fact only a special case of the broad proposition that the aggregate satisfaction can *primâ facie* be increased by the distribution, whether voluntarily or compulsorily, of some of the property of the rich among the poor; and it is reasonable that the bearings of this proposition should be set aside during the first stages of an inquiry into existing economic conditions. This assumption therefore may be properly made, provided only it is not allowed to slip out of sight.

and it ignores the fact that a fall in price due to improvements benefits consumers without injuring producers.

But in the second place the doctrine of maximum satisfaction assumes that every fall in the price which producers receive for the commodity, involves a corresponding loss to them; and this is not true of a fall in price which results from improvements in industrial organization. When a commodity obeys the law of increasing return, an increase in its production beyond equilibrium point may cause the supply price to fall much; and though the demand price for the increased amount may be reduced even more, so that the production would result in some loss to the producers, yet this loss may be very much less than that money value of the gain to purchasers which is represented by the increase of consumers' surplus.

Aggregate satisfaction can therefore primâ facie be increased beyond the level attained by the free play of demand and supply.

In the case then of commodities with regard to which the law of increasing return acts at all sharply, or in other words, for which the normal supply price diminishes rapidly as the amount produced increases, the direct expense of a bounty sufficient to call forth a greatly increased supply at a much lower price, would be much less than the consequent increase of consumers' surplus. And if a general agreement could be obtained among consumers, terms might be arranged which would make such action amply remunerative to the producers, at the same time that they left a large balance of advantage to the consumers.[2]

[1] In this illustration one of the two things exchanged is general purchasing power; but of course the argument would hold if a poor population of pearl divers were dependent for food on a rich population who took pearls in exchange.

[2] Though not of great practical importance, the case of multiple positions of (stable) equilibrium offers a good illustration of the error involved in the doctrine of maximum satisfaction when stated as a universal truth. For the position in which a small amount is produced and is sold at a high price would be the first to be reached, and when reached would be regarded according to that doctrine as that which gave the absolute maximum of aggregate satisfaction. But another position of equilibrium corresponding to a larger production and a lower price would be equally satisfactory to the producers, and would be much more satisfactory to the consumers; the excess of consumers' surplus in the second case over the first would represent the increase in aggregate satisfaction.

V, xiii, 6.

We are not here concerned with the indirect evils of artificial arrangements for this purpose.

§ 6. One simple plan would be the levying of a tax by the community on their own incomes, or on the production of goods which obey the law of diminishing return, and devoting the tax to a bounty on the production of those goods with regard to which the law of increasing return acts sharply. But before deciding on such a course they would have to take account of considerations, which are not within the scope of the general theory now before us, but are yet of great practical importance. They would have to reckon up the direct and indirect costs of collecting a tax and administering a bounty; the difficulty of securing that the burdens of the tax and the benefits of the bounty were equitably distributed; the openings for fraud and corruption; and the danger that in the trade which had got a bounty and in other trades which hoped to get one, people would divert their energies from managing their own businesses to managing those persons who control the bounties.

Besides these semi-ethical questions there will arise others of a strictly economic nature, relating to the effects which any particular tax or bounty may exert on the interests of landlords, urban or agricultural, who own land adapted for the production of the commodity in question. These are questions which must not be overlooked; but they differ so much in their detail that they cannot fitly be discussed here.[1]

[1] The incidence of a tax on agricultural produce will be discussed later on by the aid of diagrams similar to those used to represent the fertility of land (see IV. iii.). Landlords' rent absorbs a share of the aggregate selling price of almost all commodities: but it is most prominent in the case of those which obey the law of diminishing return; and an assumption of no extreme violence will enable fig. 33 (a reproduction of 31) to represent roughly the leading features of the problem.

It will be argued in Appendix H, 1, that we are not properly at liberty to assume that the expenses of raising the produce from the richer lands and under the more favourable circumstances are independent of the extent to which the production is carried; since an increased production is likely to lead to an improved organization, if not of farming industries themselves, yet of those subsidiary to them, and especially of the carrying trade. We may however permit ourselves to make this assumption provisionally, so as to get a clear view of the broad outlines of the problem; though we must not forget that in any applications of the general reasonings based on it account must be taken of the facts which we here ignore. On this assumption then SS' being the supply curve before the imposition of a tax, landlords' rent is represented by CSA. After the tax has been imposed and the supply curve raised to ss' the landlords' rent becomes the amount by which $cOha$, the total price got for Oh produce sold at the rate ha, exceeds the total tax $cFEa$, together with $OhES$ the total expenses of production, exclusive of rent, for Oh produce: that is, it becomes FSE. (In the figure the curve ss' has the same shape as SS', thereby implying that the tax is *specific*; that is, is a uniform charge on each unit of the commodity whatever be its value. The argument so far does not depend on this assumption, but if it is made we can by a shorter route get the new landlords' rent at csa, which then is equal to FSE). Thus the loss of landlords' rent is $CFEA$; and this added to $cCAa$ the loss of consumers' surplus, makes up $cFEAa$, which exceeds the gross tax by aAE.

Fig. 33.

Restatement of *primâ facie* exceptions to the doctrine that it is best for all that each should spend his income as he pleases.

§ 7. Enough has been said to indicate the character of the second great limitation which has to be introduced into the doctrine that the maximum satisfaction is *generally* to be attained by encouraging each individual to spend his own resources in that way which suits him best. It is clear that if he spends his income in such a way as to increase the demand for the services of the poor and to increase their incomes, he adds something more to the total happiness than if he adds an equal amount to the incomes of the rich, because the happiness which an additional shilling brings to a poor man is much greater than that which it brings to a rich one; and that he does good by buying things the production of which raises, in preference to things the production of which lowers the character of those who make them.[1] But further, even if we assume that a shilling's worth of happiness is of equal importance to whomsoever it comes, and that every shilling's worth of consumers' surplus is of equal importance from whatever commodity it is derived, we have to admit that the manner in which a person spends his income is a matter of direct economic concern to the community. For in so far as he spends it on things which obey the law of diminishing return, he makes those things more difficult to be obtained by his neighbours, and thus lowers the real purchasing power of their incomes; while in so far as he spends it on things which obey the law of increasing return, he makes those things more easy of attainment to others, and thus increases the real purchasing power of their incomes.

Again, it is commonly argued that an equal *ad valorem* tax levied on all economic commodities (material and immaterial), or which is the same thing a tax on expenditure, is *primâ facie* the best tax; because it does not divert the expenditure of individuals out of its natural channels: we have now seen that this argument is invalid. But ignoring for the time the fact that the direct economic effect of a tax or a bounty never constitutes the whole, and very often not even the chief part of the considerations which have to be weighed before deciding to adopt it, we have found :—firstly, that a tax on expenditure generally causes a greater destruction of consumers' surplus than one levied exclusively on commodities as to which there

On the other hand, the direct payments under a bounty would exceed the increase of consumers' surplus, and of landlords' surplus calculated on the above assumptions. For taking ss' to be the original position of the supply curve, and SS' to be its position after the bounty, the new landlords' surplus on these assumptions is CSA, or which is the same thing RsT; and this exceeds the old landlords' rent csa by $RcaT$. The increase of consumers' surplus is $cCAa$; and therefore the total bounty, which is $RCAT$, exceeds the gain of consumers' surplus and landlords' rent together by TaA.

For reasons stated in Appendix H, 3, the assumption on which this reasoning proceeds is inapplicable to cases in which the supply curve is inclined negatively.

[1] Compare III. vi.

V, XIII, 7. is but little room for the economies of production on a large scale, and which obey the law of diminishing return; and secondly, that it might even be for the advantage of the community that the government should levy taxes on commodities which obey the law of diminishing return, and devote part of the proceeds to bounties on commodities which obey the law of increasing return.

These conclusions, it will be observed, do not by themselves afford a valid ground for government interference. But they show that much remains to be done, by a careful collection of the statistics of demand and supply, and a scientific interpretation of their results, in order to discover what are the limits of the work that society can with advantage do towards turning the economic actions of individuals into those channels in which they will add the most to the sum total of happiness.[1]

[1] It is remarkable that Malthus, *Political Economy*, ch. III. § 9, argued that, though the difficulties thrown in the way of importing foreign corn during the great war turned capital from the more profitable employment of manufacture to the less profitable employment of agriculture, yet if we take account of the consequent increase of agricultural rent, we may conclude that the new channel may have been one of "higher national, though not higher individual profits." In this no doubt he was right; but he overlooked the far more important injury inflicted on the public by the consequent rise in the price of corn, and the consequent destruction of consumers' surplus. Senior takes account of the interests of the consumer in his study of the different effects of increased demand on the one hand and of taxation on the other in the case of agricultural and manufactured produce (*Political Economy*, pp. 118–123). Advocates of Protection in countries which export raw produce have made use of arguments tending in the same direction as those given in this Chapter; and similar arguments are now used, especially in America (as for instance by Mr. H. C. Adams), in support of the active participation of the State in industries which conform to the law of increasing return. The graphic method has been applied, in a manner somewhat similar to that adopted in the present Chapter, by Dupuit in 1844; and, independently, by Fleeming Jenkin (*Edinburgh Philosophical Transactions*) in 1871.

CHAPTER XIV

THE THEORY OF MONOPOLIES

We are now to compare the monopolist's gains from a high price with the benefits to the public of a low price.

§ 1. It has never been supposed that the monopolist in seeking his own advantage is naturally guided in that course which is most conducive to the well-being of society regarded as a whole, he himself being reckoned as of no more importance than any other member of it. The doctrine of Maximum Satisfaction has never been applied to the demand for and supply of monopolized commodities. But there is much to be learnt from a study of the relations in which the interests of the monopolist stand to those of the rest of society, and of the general conditions under which it might be possible to make arrangements more beneficial to society as a whole than those which he would adopt if he consulted only his own interests: and with this end in view we are now to seek for a scheme for comparing the relative quantities of the benefits which may accrue to the public and to the monopolist from the adoption of different courses of action by him.

In a later volume a study will be made of the Protean shapes of modern trade combinations and monopolies, some of the most important of which, as for example "Trusts," are of very recent growth. At present we consider only those general causes determining monopoly values, that can be traced with more or less distinctness in every case in which a single person or association of persons has the power of fixing either the amount of a commodity that is offered for sale or the price at which it is offered.

Net *Monopoly Revenue.*

§ 2. The *primâ facie* interest of the owner of a monopoly is clearly to adjust the supply to the demand, not in such a way that the price at which he can sell his commodity shall just cover its expenses of production, but in such a way as to afford him the greatest possible total net revenue.

But here we meet with a difficulty as to the meaning of the term Net revenue. For the supply price of a freely-produced commodity includes normal profits; the whole of which, or at all events what remains of them after deducting interest on the capital employed and insurance against loss, is often classed indiscriminately as net revenue. And when a man manages his own business, he

V, XIV, 3. often does not distinguish carefully that portion of his profits, which really is his own earnings of management, from any exceptional gains arising from the fact that the business is to some extent of the nature of a monopoly.

This difficulty however is in a great measure avoided in the case of a public company; where all, or nearly all, the expenses of management are entered in the ledger as definite sums, and are subtracted from the total receipts of the company before its net income is declared.

The net income divided among the shareholders includes interest on the capital invested and insurance against risk of failure, but little or no earnings of management; so that the amount by which the dividends are in excess of what may fairly be allowed as interest and insurance, is the *Monopoly Revenue* which we are seeking.

Since then it is much easier to specify exactly the amount of this net revenue when a monopoly is owned by a public company than when it is owned by an individual or private firm, let us take as a typical instance the case of a gas company that has the monopoly of the supply of gas to a town. For the sake of simplicity the company may be supposed to have already invested the whole of its own capital in fixed plant, and to borrow any more capital, that it may want to extend its business, on debentures at a fixed rate of interest.

The demand schedule is as usual; but the supply schedule must be drawn on a special plan.

§ 3. The demand schedule for gas remains the same as it would be if gas were a freely-produced commodity; it specifies the price per thousand feet at which consumers in the town will among them use any given number of feet. But the supply schedule must represent the normal expenses of production of each several amount supplied; and these include interest on all its capital, whether belonging to its shareholders or borrowed on debentures, at a fixed normal rate; they include also the salaries of its directors, and permanent officials, adjusted (more or less accurately) to the work required of them, and therefore increasing with an increase in the output of gas. A

The *Monopoly revenue schedule.*

monopoly revenue schedule may then be constructed thus:—Having set against each several amount of the commodity its demand price, and its supply price estimated on the plan just described, subtract each supply price from the corresponding demand price and set the residue in the monopoly revenue column against the corresponding amount of the commodity.

Thus for instance if a thousand million feet could be sold annually at a price of 3*s.* per thousand feet, and the supply price for this amount were 2*s.* 9*d.* per thousand feet, the monopoly revenue schedule would show 3*d.* against this amount; indicating an aggre-

gate net revenue when this amount was sold, of three million pence, or £12,500. The aim of the company, having regard only to their own immediate dividends, will be to fix the price of their gas at such a level as to make this aggregate net revenue the largest possible.[1] V, XIV, 4.

§ 4. Now suppose that a change takes place in the conditions of supply; some new expense has to be incurred, or some old expense can be avoided; or perhaps a new tax is imposed on the undertaking or a bounty is awarded to it.

First let this increase or diminution of the expenses be a fixed sum, bearing on the undertaking as one undivided whole and not A tax, fixed in

[1] Thus DD' being the demand curve, and SS' the curve corresponding to the supply schedule described in the text, let MP_2P_1 be drawn vertically from any point M in Ox, cutting SS' in P_2 and DD' in P_1; and from it cut off $MP_3 = P_2P_1$, then the locus of P_3 will be our third curve, QQ', which we may call the *monopoly revenue curve*. The supply price for a small quantity of gas will of course be very high; and in the neighbourhood of Oy the supply curve will be above the demand curve, and therefore the net revenue curve will be below Ox. It will cut Ox in K and again in H, points which are vertically under B and A, the two points of intersection of the demand and supply curves. The maximum monopoly revenue will then be obtained by finding a point q_3 on QQ' such that Lq_3 being drawn perpendicular to Ox, $OL \times Lq_3$ is a maximum. Lq_3 being produced to cut SS' in q_2 and DD^1 in g_1, the company, if desiring to obtain the greatest immediate monopoly revenue, will fix the price per thousand feet at Lq_1, and consequently will sell OL thousand feet; the expenses of production will be Lq_2 per thousand feet, and the aggregate net revenue will be $OL \times q_2q_1$, or which is the same thing $OL \times Lq_3$.

The dotted lines in the diagram are known to mathematicians as rectangular hyperbolas; but we may call them *constant revenue curves*: for they are such that if from a point on any one of them lines be drawn perpendicular to Ox and Oy respectively (the one representing revenue per thousand feet and the other representing the number of thousand feet sold), then the product of these will be a constant quantity for every point on one and the same curve. This product is of course a smaller quantity for the inner curves, those nearer Ox and Oy, than it is for the outer curves. And consequently since P_3 is on a smaller constant revenue curve than q_3 is, $OM \times MP_3$ is less than $OL \times Lq_3$. It will be noticed that q_3 is the point in which QQ' touches one of these curves. That is, q_3 is on a larger constant revenue curve than is any other point on QQ'; and therefore $OL \times Lq_3$ is greater than $OM \times MP_3$, not only in the position given to M in the figure, but also in any position that M can take along Ox. That is to say, q_3 has been correctly determined as the point on QQ' corresponding to the maximum total monopoly revenue. And thus we get the rule:—If through that point in which QQ' touches one of a series of constant revenue curves, a line be drawn vertically to cut the demand curve, then the distance of that point of intersection from Ox will be the price at which the commodity should be offered for sale in order that it may afford the maximum monopoly revenue. See Note XXII. in the Mathematical Appendix.

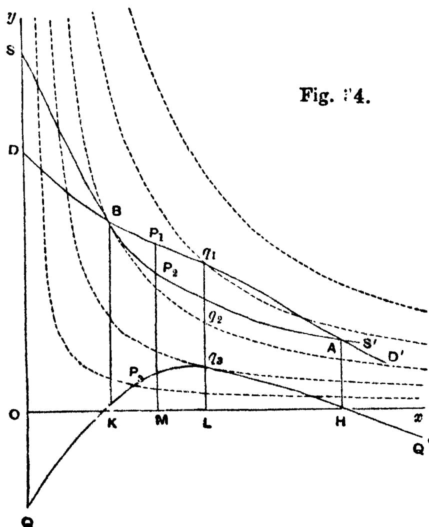


Fig. 24.

V, xiv, 4.

total amount, on a monopoly will not diminish production;

varying with the amount of the commodity produced. Then, whatever be the price charged and the amount of the commodity sold, the monopoly revenue will be increased or diminished, as the case may be, by this sum; and therefore that selling price which afforded the maximum monopoly revenue before the change will afford it afterwards; the change therefore will not offer to the monopolist any inducement to alter his course of action. Suppose for instance that the maximum monopoly revenue is got when twelve hundred million cubic feet are sold annually; and that this is done when the price is fixed at 30*d.* per thousand feet: suppose that the expenses of production for this amount are at the rate of 26*d.*, leaving a monopoly revenue at the rate of four pence per thousand feet, that is £20,000 in all. This is its maximum value: if the company fixed the price higher at, say, 31*d.* and sold only eleven hundred million feet, they would perhaps get a monopoly revenue at the rate of 4·2 pence per thousand feet, that is £19,250 in all; while in order to sell thirteen hundred millions they would have to lower their price to, say, 28*d.* and would get a monopoly revenue at the rate of perhaps 3·6*d.* per thousand feet, that is £19,500 in all. Thus by fixing the price at 30*d.* they get £750 more than by fixing it at 31*d.*, and £500 more than by fixing it at 28*d.* Now let a tax of £10,000 a year be levied on the gas company as a fixed sum independent of the amount they sell. Their monopoly revenue will become £10,000 if they charge 30*d.*, £9,250 if they charge 31*d.*, and £9,500 if they charge 28*d.* They will therefore continue to charge 30*d.*

nor will one proportioned to monopoly revenue,

The same is true of a tax or a bounty proportioned not to the gross receipts of the undertaking, but to its monopoly revenue. For suppose next that a tax is levied, not of one fixed sum, but a certain percentage, say 50 per cent. of the monopoly revenue. The company will then retain a monopoly revenue of £10,000 if they charge 30*d.*, of £9,625 if they charge 31*d.*, and of £9,750 if they charge 28*d.* They will therefore still charge 30*d.*[1]

[1] If to the expenses of working a monopoly there be added (by a tax or otherwise) a lump sum independent of the amount produced, the result will be to cause every point on the monopoly revenue curve to move downwards to a point on a constant revenue curve representing a constant revenue smaller by a *fixed amount* than that on which it lies. Therefore the maximum revenue point on the new monopoly revenue curve lies vertically below that on the old: that is, the selling price and the amount produced remain unchanged, and conversely with regard to a fixed bounty or other fixed diminution of aggregate working expenses. As to the effects of a tax proportional to monopoly revenue, see Note XXIII. in the Mathematical Appendix.

It should however be noticed that if a tax or other new additional expense exceeds the maximum monopoly revenue, it will prevent the monopoly from being worked at all; it will convert the price which had afforded the maximum monopoly revenue into the price which would reduce to a minimum the loss that would result from continuing to work the monopoly.

On the other hand a tax proportional to the amount produced gives an inducement to the monopolist to lessen his output and raise his price. For by so doing he diminishes his expenses. And the excess of total receipts over total outlay may therefore be now increased by a diminution of output; though before the imposition of the tax it would have been lessened. Further, if before the imposition of the tax the net revenue was only a little greater than that which would have been afforded by much smaller sales, then the monopolist would gain by reducing his production very greatly; and hence in such cases as this, the change is likely to cause a very great diminution of production and rise of price. The opposite effects will be caused by a change which diminishes the expense of working the monopoly by a sum that varies directly with the amount produced under it.

V, XIV, 4.

but it will have that effect if it is proportional to the quantity produced.

In the last example, for instance, a tax of 2*d.* on each thousand feet sold would have reduced the monopoly revenue to £10,083 if the company charged 31*d.* per thousand feet and therefore sold eleven hundred millions; to £10,000 if they charged 30*d.* and therefore sold twelve hundred millions, and to £8,666 if they charged 28*d.* and therefore sold thirteen hundred million feet. Therefore the tax would induce the company to raise the price to something higher than 30*d.*; they would perhaps go to 31*d.*, perhaps somewhat higher; for the figures before us do not show exactly how far it would be their interest to go.

On the other hand, if there were a bounty of 2*d.* on the sale of each thousand feet, the monopoly revenue would rise to £28,416 if they charged 31*d.*, to £30,000 if they charged 30*d.*, and to £30,333 if they charged 28*d.*: it would therefore cause them to lower the price. And of course the same result would follow from an improvement in the method of making gas, which lowered its cost of production to the monopolist company by 2*d.* per 1000 feet.[1]

[1] In the text it is supposed that the tax or bounty is directly proportional to the sales: but the argument, when closely examined, will be found to involve no further assumption than that the aggregate tax or bounty increases with every increase in that amount: the argument does not really require that it should increase in exact proportion to that amount.

Much instruction is to be got by drawing diagrams to represent various conditions of demand and of (monopoly) supply, with the resultant shapes of the monopoly revenue curve. A careful study of the shapes thus obtained will give more assistance than any elaborate course of reasoning in the endeavour to realize the multiform action of economic forces in relation to monopolies. A tracing may be made on thin paper of the constant revenue curves in one of the diagrams; and this, when laid over a monopoly revenue curve, will indicate at once the point, or points, of maximum revenue. For it will be found, not only when the demand and supply curves cut one another more than once, but also when they do not, there will often be, as in fig. 35, several points on a monopoly revenue curve at which it touches a constant revenue curve. Each of these points will show a true maximum monopoly revenue; but one of them will generally stand out pre-eminently as being on a larger

V, xiv, 5.

In comparing monopoly price with competition price,

§ 5. The monopolist would lose all his monopoly revenue if he produced for sale an amount so great that its supply price, as here defined, was equal to its demand price: the amount which gives the maximum monopoly revenue is always considerably less than that. It may therefore appear as though the amount produced under a monopoly is always less and its price to the consumer always higher than if there were no monopoly. But this is not the case.

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constant revenue curve than any of the others and therefore indicating a larger monopoly revenue than they.

If it happens, as in fig. 35, that this chief maximum q'_3 lies a long way to the right of a smaller maximum q_3, then the imposition of a tax on the commodity, or any other change that raised its supply curve throughout, would lower by an equal

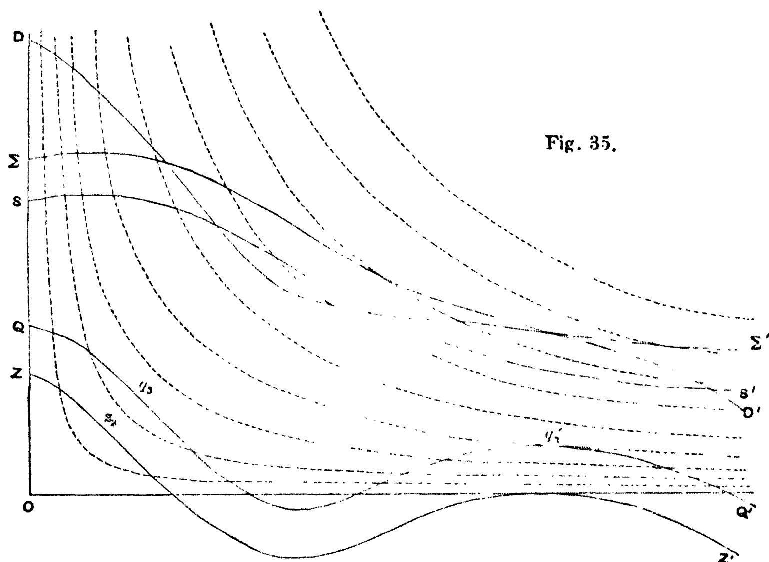


Fig. 35.

amount the monopoly revenue curve. Let the supply curve be raised from SS' to the position $\Sigma\Sigma'$; and in consequence let the monopoly revenue curve fall from its old position QQ' to ZZ'; then the chief point of maximum revenue will move from q'_3 to z_3, representing a great diminution of production, a great rise of price and a great injury to the consumers. The converse effects of any change, such as a bounty on the commodity, which lowers its supply price throughout and raises the monopoly revenue curve, may be seen by regarding ZZ' as the old and QQ' as the new position of that curve. It will be obvious on a little consideration (but the fact may with advantage be illustrated by drawing suitable diagrams), that the more nearly the monopoly revenue curve approximates to the shape of a constant revenue curve, the greater will be the change in the position of the maximum revenue point which results from any given alteration in the expenses of production of the commodity generally. This change is great in fig. 35 not because DD' and SS' intersect more than once, but because two parts of QQ', one a long way to the right of the other, lie in the neighbourhood of the same constant revenue curve.

V, XIV, 5.

It must be remembered that a monopoly can generally be worked economically.

For when the production is all in the hands of one person or company, the total expenses involved are generally less than would have to be incurred if the same aggregate production were distributed among a multitude of comparatively small rival producers. They would have to struggle with one another for the attention of consumers, and would necessarily spend in the aggregate a great deal more on advertising in all its various forms than a single firm would; and they would be less able to avail themselves of the many various economies which result from production on a large scale. In particular they could not afford to spend as much on improving methods of production and the machinery used in it, as a single large firm which knew that it was certain itself to reap the whole benefit of any advance it made.

This argument does indeed assume the single firm to be managed with ability and enterprise, and to have an unlimited command of capital—an assumption which cannot always be fairly made. But where it can be made, we may generally conclude that the supply schedule for the commodity, if not monopolized, would show higher supply prices than those of our monopoly supply schedule; and therefore the equilibrium amount of the commodity produced under free competition would be less than that for which the demand price is equal to the monopoly supply price.[1]

But this raises questions which are incapable of general solution.

One of the most interesting and difficult applications of the theory of monopolies is to the question whether the public interest is best served by the allotment of a distinct basin to each great railway, and excluding competition there. For the proposal it is urged that a railway can afford to carry two million passengers, or tons of goods, cheaper than one million: and that a division of the public demand between two lines will prevent either of them from offering a cheap service. It must be admitted that, other things being equal, the "monopoly revenue price" fixed by a railway will be lowered by every increase in the demand for its services, and *vice versâ*. But, human nature being what it is, experience has shown that the breaking of a monopoly by the opening out of a competing line accelerates, rather than retards the discovery by the older line

[1] In other words, though L lies necessarily a good deal to the left of H, according to the notation in fig. 34; yet the supply curve for the commodity, if there were no monopoly, might lie so much above the present position of SS' that its point of intersection with DD' would lie much to the left of A in the figure, and might not improbably lie to the left of L. Something has already been said (IV. XI., XII.; and V. XI.), as to the advantages which a single powerful firm has over its smaller rivals in those industries in which the law of increasing return acts strongly; and as to the chance which it might have of obtaining a practical monopoly of its own branch of production, if it were managed for many generations together by people whose genius, enterprise and energy equalled those of the original founders of the business.

V, XIV, 6.

that it can afford to carry traffic at lower rates. There still remains the suggestion that after a while the railways will combine and charge the public with the expense wasted on duplicating the services. But this again only opens out new matters of controversy. The theory of monopolies starts rather than solves practical issues such as these: and we must defer their study.[1]

The monopolist may lower his price with a view to the future development of his business,

§ 6. So far we have supposed the owner of a monopoly to fix the price of his commodity with exclusive reference to the immediate net revenue which he can derive from it. But, in fact, even if he does not concern himself with the interests of the consumers, he is likely to reflect that the demand for a thing depends in a great measure on people's familiarity with it; and that if he can increase his sales by taking a price a little below that which would afford him the maximum net revenue, the increased use of his commodity will before long recoup him for his present loss. The lower the price of gas, the more likely people are to have it laid on to their houses; and when once it is there, they are likely to go on making some use of it, even though a rival, such as electricity or mineral oil, may be competing closely with it. The case is stronger when a railway company has a practical monopoly of the transport of persons and goods to a sea-port, or to a suburban district which is as yet but partly built over; the railway company may then find it worth while, as a matter of business, to levy charges much below those which would afford the maximum net revenue, in order to get merchants into the habit of using the port, to encourage the inhabitants of the port to develop their docks and warehouses; or to assist speculative builders in the new suburb to build houses cheaply and to fill them quickly with tenants, thus giving to the suburb an air of early prosperity which goes far towards insuring its permanent success. This sacrifice by a monopolist of part of his present gains in order to develop future business differs in extent rather than kind from the sacrifices which a young firm commonly makes in order to establish a connection.

In such cases as these a railway company though not pretending to any philanthropic motives, yet finds its own interests so closely

[1] The full theoretical treatment of questions relating to the influence exerted on monopoly price by an increase of demand requires the use of mathematics for which the reader is referred to an article on monopolies by Professor Edgeworth in the *Giornale degli Economisti* for Oct. 1897. But an inspection of fig. 34 will show that a uniform raising of DD' will push L much to the right; and that the resulting position of q_1 will probably be lower than before. If, however, a new class of residents come into the district, who are so well to do, that their willingness to travel is very little affected by the railway charges, then the shape of DD' will be altered; its left side will be raised more in proportion than its right: and the new position of q_1 may be higher than the old.

connected with those of the purchasers of its services, that it gains by making some temporary sacrifice of net revenue with the purpose of increasing consumers' surplus. And an even closer connection between the interests of the producers and the consumers is found when the landowners of any district combine to make a branch railway through it, without much hope that the traffic will afford the current rate of interest on the capital which they invest—that is, without much hope that the monopoly revenue of the railway, as we have defined it, will be other than a negative quantity—but expecting that the railway will add so much to the value of their property as to make their venture on the whole a profitable one. And when a municipality undertakes the supply of gas or water, or facilities for transport by improved roads, by new bridges, or by tramways, the question always arises whether the scale of charges should be high, so as to afford a good net revenue and relieve the pressure on the rates; or should be low, so as to increase consumers' surplus.

or from a direct interest in the welfare of consumers.

§ 7. It is clear then that some study is wanted of calculations by which a monopolist should govern his actions, on the supposition that he regards an increase of consumers' surplus as equally desirable to him, if not with an equal increase of his own monopoly revenue, yet with an increase, say, one-half or one-quarter as great.

If the consumers' surplus which arises from the sale of the commodity at any price, is added to the monopoly revenue derived from it, the sum of the two is the money measure of the net benefits accruing from the sale of the commodity to producers and consumers together, or as we may say the *total benefit* of its sale. And if the monopolist regards a gain to the consumers as of equal importance with an equal gain to himself, his aim will be to produce just that amount of the commodity which will make this total benefit a maximum.[1]

The *total benefit* of a monopoly is the sum of the monopoly revenue and consumers' surplus.

[1] In fig. 36 DD', SS', and QQ' represent the demand, supply, and monopoly revenue curves drawn on the same plan as in fig. 34. From P_1 draw P_1F perpendicular to Oy; then DFP_1 is the consumers' surplus derived from the sale of OM thousand feet of gas at the price MP_1. In MP_1 take a point P_4 such that $OM \times MP_4$ = the area DFP_1: then as M moves from O along Ox, P_4 will trace out our fourth curve, OR, which we may call the *consumers' surplus curve*. (Of course it passes through O, because when the sale of the commodity is reduced to nothing, the consumers' surplus also vanishes.)

Next from P_3P_1 cut off P_3P_5 equal to MP_4, so that $MP_5 = MP_3 + MP_4$. Then $OM \times MP_5 = OM + MP_3 + OM \times MP_4$; but $OM \times MP_3$ is the total monopoly revenue when an amount OM is being sold at a price MP_1, and $OM \times MP_4$ is the corresponding consumers' surplus. Therefore $OM \times MP_5$ is the sum of the monopoly revenue and the consumers' surplus, that is the (money measure of the) total benefit which the community will derive from the commodity when an amount OM is produced. The locus of P_5 is our fifth curve, QT, which we may call the *total*

V, xiv, 7.

But if the consumers' surplus be counted at only a fraction of its actual value, the sum of the two may be called compromise benefit.

But it will seldom happen that the monopolist can and will treat £1 of consumers' surplus as equally desirable with £1 of monopoly revenue. Even a government which considers its own interests coincident with those of the people has to take account of the fact that, if it abandons one source of revenue, it must in general fall back on others which have their own disadvantages. For they will necessarily involve friction and expense in collection, together with some injury to the public, of the kind which we have described as a loss of consumers' surplus: and they can never be adjusted with perfect fairness, especially when account is taken of the unequal shares that different members of the community will get of the benefits for the sake of which it is proposed that the government should forego some of its revenue.

Suppose then that the monopolist makes a compromise, and reckons £1 of consumers' surplus as equivalent to say 10*s.* of monopoly revenue. Let him calculate the monopoly revenue to be got from selling his commodity at any given price, and to it let him add

benefit curve. It touches one of the constant revenue curves at t_5, and this shows that the (money measure of the) total benefit is a maximum when the amount offered

Fig. 36.

for sale is *OW*; or, which is the same thing, when the price of sale is fixed at the demand price for *OW*.

one half the corresponding consumers' surplus: the sum of the two may be called the *compromise benefit*; and his aim will be to fix on that price which will make the compromise benefit as large as possible.[1]

General results. The following general results are capable of exact proof; but on a little consideration they will appear so manifestly true as hardly to require proof. Firstly, the amount which the monopolist will offer for sale will be greater (and the price at which he will sell it will be less) if he is to any extent desirous to promote the interests of consumers than if his sole aim is to obtain the greatest possible monopoly revenue; and secondly, the amount produced will be greater (and the selling price will be less) the greater be the desire of the monopolist to promote the interests of consumers; *i.e.* the larger be the percentage of its actual value at which he counts in consumers' surplus with his own revenue.[2]

The importance of the interests of consumers has been under-estimated, § 8. Not many years ago it was commonly argued that: "An English ruler, who looks upon himself as the minister of the race he rules, is bound to take care that he impresses their energies in no work that is not worth the labour that is spent upon it, or—to translate the sentiment into plainer language—that he engages in nothing that will not produce an income sufficient to defray the interest on its cost."[3] Such phrases as this may sometimes have meant little more than that a benefit which consumers were not willing to purchase at a high price and on a large scale, was likely to exist for the greater part only in the specious counsels of those who had some personal interest in the proposed undertakings; but probably they more often indicated a tendency to under-estimate the magnitude of that interest which consumers have in a low price, and which we call consumers' surplus.[4]

[1] If he compromises on the basis that £1 of consumers' surplus is equally desirable with £n of monopoly revenue, n being a proper fraction, let us take a point P_6 in P_3P_5 such that $P_3P_6 = n.P_3P_5$, or, which is the same thing, nMP_4. Then $OM \times MP_6 = OM \times MP_3, + nOM \times MP_4$; that is, it is equal to the monopoly revenue derived from selling an amount OM of the commodity at the price MP_1, $+ n$ times the consumers' surplus derived from this sale: and is therefore the compromise benefit derived from that sale. The locus of P_6 is our sixth curve, QU, which we may call the *compromise benefit curve*. It touches one of the constant revenue curves in u_6; which shows that the compromise benefit attains its maximum when amount OY is sold; or which is the same thing, when the selling price is fixed at the demand price for the amount OY.

[2] That is to say, firstly, OY fig. 36 is always greater than OL; and secondly, the greater n is, the greater OY is. (See Note XXIII. *bis* in the Mathematical Appendix.)

[3] The words are quoted from a leading article in *The Times* for July 30, 1874: they fairly represent a great body of public opinion.

[4] Fig. 37 may be taken to represent the case of a proposed Government undertaking in India. The supply curve is above the demand curve during its whole length, showing that the enterprise to which it refers is unremunerative, in the sense that whatever price the producers fix, they will lose money; their monopoly revenue will be a negative quantity. But QT the total benefit curve rises above Ox; and

V, XIV, 8.

because direct personal experience seldom helps much towards forming correct estimates of them,

One of the chief elements of success in private business is the faculty of weighing the advantages and disadvantages of any proposed course, and of assigning to them their true relative importance. He who by practice and genius has acquired the power of attributing to each factor its right quantity, is already well on the way to fortune; and the increase in the efficiency of our productive forces is in a great measure due to the large number of able minds who are devoting themselves ceaselessly to acquiring these business instincts. But unfortunately the advantages thus weighed against one another are nearly all regarded from one point of view, that of the producer; and there are not many who concern themselves to weigh against

touches a constant revenue curve in t_5. If then they offer for sale an amount OW (or, which is the same thing, fix the price at the demand price for OW), the resultant consumers' surplus, if taken at its full value, will outweigh the loss on working by an

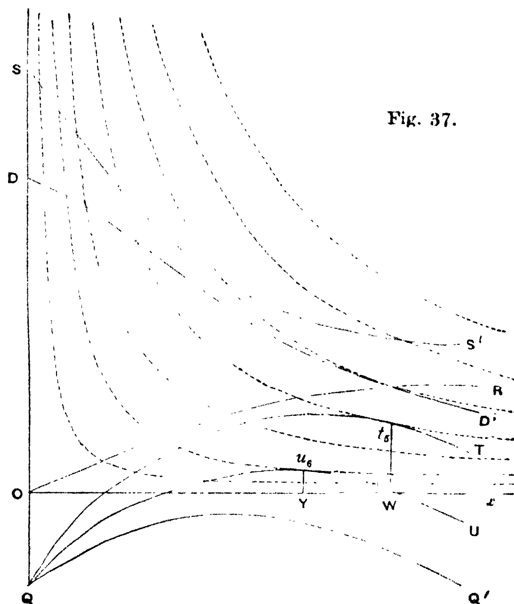


Fig. 37.

amount represented by $OW \times Wt_5$. But suppose that, in order to make up the deficiency, Government must levy taxes, and that taking account of all indirect expenses and other evils, these cost the public twice what they bring in to the Government, it will then be necessary to count two rupees of the consumers' surplus as compensating for a Government outlay of only one rupee; and in order to represent the net gain of the undertaking on this supposition, we must draw the compromise benefit curve QU as in fig. 36, but putting $n = \frac{1}{2}$. Thus $MP_6 = MP_3 \times \frac{1}{2}MP_4$. (Another way of putting the same thing is to say that QU is drawn midway between the monopoly revenue (negative) curve QQ' and the total benefit curve QT.) QU so drawn in fig. 37 touches a constant revenue curve in u_6, showing that if the amount OY is offered for sale, or, which is the same thing, if the price is fixed at the demand price for OY, there will result a net gain to India represented by $OY \times Yu_6$.

one another the relative quantities of the interests which the consumers and the producers have in different courses of action. For indeed the requisite facts come within the direct experience of only a very few persons, and even in the case of those few, only to a very limited extent and in a very imperfect way. Moreover when a great administrator has acquired those instincts with regard to public interests which able business men have with regard to their own affairs, he is not very likely to be able to carry his plans with a free hand. At all events in a democratic country no great public undertaking is secure of being sustained on consistent lines of policy, unless its advantages can be made clear, not only to the few who have direct experience of high public affairs, but also to the many who have no such experience and have to form their judgment on the materials set before them by others.

and our public statistics are not yet properly organized.

Judgments of this kind must always be inferior to those which an able business man forms, by the aid of instincts based on long experience with regard to his own business. But they may be made much more trustworthy than they are at present, if they can be based on statistical measures of the relative quantities of the benefits and the injuries which different courses of public action are likely to cause to the several classes of the community. Much of the failure and much of the injustice, in which the economic policies of governments have resulted, have been due to the want of statistical measurement. A few people who have been strongly interested on one side have raised their voices loudly, persistently and all together; while little has been heard from the great mass of people whose interests have lain in the opposite direction; for, even if their attention has been fairly called to the matter, few have cared to exert themselves much for a cause in which no one of them has more than a small stake. The few therefore get their way, although if statistical measures of the interests involved were available, it might prove that the aggregate of the interests of the few was only a tenth or a hundredth part of the aggregate of the interests of the silent many.

Statistical arguments are often misleading at first; but free discussion clears away statistical fallacies.

No doubt statistics can be easily misinterpreted; and are often very misleading when first applied to new problems. But many of the worst fallacies involved in the misapplications of statistics are definite and can be definitely exposed, till at last no one ventures to repeat them even when addressing an uninstructed audience: and on the whole arguments which can be reduced to statistical forms, though still in a backward condition, are making more sure and more rapid advances than any others towards obtaining the

V, xiv, 9. general acceptance of all who have studied the subjects to which they refer. The rapid growth of collective interests, and the increasing tendency towards collective action in economic affairs, make it every day more important that we should know what quantitative measures of public interests are most needed and what statistics are required for them, and that we should set ourselves to obtain these statistics.

Hopes for the future from the statistical study of demand and consumers' surplus.

It is perhaps not unreasonable to hope that as time goes on, the statistics of consumption will be so organized as to afford demand schedules sufficiently trustworthy, to show in diagrams that will appeal to the eye, the quantities of consumers' surplus that will result from different courses of public and private action. By the study of these pictures the mind may be gradually trained to get juster notions of the relative magnitudes of the interests which the community has in various schemes of public and private enterprise; and sounder doctrines may replace those traditions of an earlier generation, which had perhaps a wholesome influence in their time, but which damped social enthusiasm by throwing suspicion on all projects for undertakings by the public on its own behalf which would not show a balance of direct pecuniary profit.

The practical bearings of many of the abstract reasonings in which we have recently been engaged will not be fully apparent till we approach the end of this treatise. But there seemed to be advantages in introducing them thus early, partly because of their close connection with the main theory of equilibrium of demand and supply, and partly because they throw side lights on the character and the purposes of that investigation of the causes which determine distribution on which we are about to enter.

The problem of two monopolies dependent on each other's aid is incapable of a universal solution.

§ **9.** So far it has been assumed that the monopolist can buy and sell freely. But in fact monopolistic combinations in one branch of industry foster the growth of monopolistic combinations in those which have occasion to buy from or sell to it: and the conflicts and alliances between such associations play a rôle of ever increasing importance in modern economics. Abstract reasoning of a general character has little to say on the subject. If two absolute monopolies are complementary, so that neither can turn its products to any good account, without the other's aid, there is no means of determining where the price of the ultimate product will be fixed. Thus if we supposed, following Cournot's lead, that copper and zinc were each of them useless except when combined to make brass: and if we supposed that one man, A, owned all the available sources of supply of copper; while another, B, owned all those of

zinc; there would then be no means of determining beforehand what amount of brass would be produced, nor therefore the price at which it could be sold. Each would try to get the better of the other in bargaining; and though the issue of the contest would greatly affect the purchasers, they would not be able to influence it.[1] V, XIV, 9.

There are *primâ facie* reasons for thinking that the public interest calls for their fusion,

Under the conditions supposed, *A* could not count on reaping the whole, nor even any share at all of the benefit, from increased sales, that would be got by lowering the price of copper in a market in which the price of zinc was fixed by natural causes rather than strategical higgling and bargaining. For, if he reduced his price, *B* might take the action as a sign of commercial weakness, and raise the price of zinc; thus causing *A* to lose both on price and on amount sold. Each would therefore be tempted to bluff the other; and consumers might find that less brass was put on the market, and that therefore a higher price could be exacted for it, than if a single monopolist owned the whole supplies both of copper and of zinc: for he might see his way to gaining in the long run by a low price which stimulated consumption. But neither *A* nor *B* could reckon on the effects of his own action, unless the two came together and agreed on a common policy: that is unless they made a partial, and perhaps temporary fusion of their monopolies. On this ground, and because monopolies are likely to disturb allied industries it may reasonably be urged that the public interest generally requires that complementary monopolies should be held in a single hand.

but such a fusion would in many cases introduce greater and more lasting discords than it removed.

But there are other considerations of perhaps greater importance on the other side. For in real life there are scarcely any monopolies as absolute and permanent as that just discussed. On the contrary there is in the modern world an ever increasing tendency towards the substitution of new things and new methods for old, which are not being developed progressively in the interests of consumers; and the direct or indirect competition thus brought to bear is likely to weaken the position of one of the complementary monopolies more than the other. For instance if there be only one factory for spinning and only one for weaving in a small isolated country, it may be for the time to the public interest that the two should be in

[1] Thus there is a slight analogy between this case and that of composite rent of water power, and the only site on which it could be turned to account (see above V. XI. 7), so far as the indeterminateness of the division of the producer's surplus is concerned. But in this case there is no means of knowing what the producer's surplus will be. Cournot's fundamental equations appear to be based on inconsistent assumptions, see *Recherches sur les principes mathématiques des Richesses*, Ch. IX. p. 113. Here, as elsewhere, he opened up new ground, but overlooked some of its most obvious features. Prof. H. L. Moore (*Quarterly Journal of Economics*, Feb. 1906), basing himself partly on the work of Bertrand and Prof. Edgeworth, lays down clearly the assumptions which are appropriate to monopoly problems.

V, XIV, 9. the same hands. But the monopoly so established will be much harder to shake than would either half of it separately. For a new venturer might push his way into the spinning business and compete with the old spinning mill for the custom of the old weaving sheds.

Consider again a through route, partly by rail and partly by sea, between two great centres of industry. If competition on either half of the route were permanently impossible, it would probably be to the public interest that the ships and the railway line should be in the same hands. But as things are, no such general statement can be made. Under some conditions it is more to the public interest that they should be in one hand; under others, and those perhaps the conditions that occur the more frequently, it is in the long run to the public interest that they should remain in different hands.

Similarly the *primâ facie* arguments in favour of the fusion of monopolistic cartels, or other associations, in complementary branches of industry, though often plausible and even strong, will generally be found on closer examination to be treacherous. They point to the removal of prominent social and industrial discords; but at the probable expense of larger and more enduring discords in the future.[1]

[1] Book III. of *Industry and Trade* is occupied with a study of problems akin to those which have been sketched in this chapter.

CHAPTER XV

SUMMARY OF THE GENERAL THEORY OF EQUILIBRIUM OF DEMAND AND SUPPLY

§ 1. THE present chapter contains no new matter: it is a mere summary of the results of Book V. The second half of it may be of service to anyone who has omitted the later chapters: for it may indicate, though it cannot explain, their general drift. V, xv, 1.

In Book V we have studied the theory of the mutual relations of demand and supply in their most general form; taking as little account as possible of the special incidents of particular applications of the theory, and leaving over for the following Book the study of the bearings of the general theory on the special features of the several agents of production, Labour, Capital, and Land.

Ch. I. On markets.

The difficulties of the problem depend chiefly on variations in the area of space, and the period of time over which the market in question extends; the influence of time being more fundamental than that of space.

Ch. II. Temporary equilibrium of demand and supply

Even in a market of very short period, such as that of a provincial corn-exchange on market-day, the "higgling and bargaining" might probably oscillate about a mean position, which would have some sort of a right to be called the equilibrium price: but the action of dealers in offering one price or refusing another would depend little, if at all, on calculations with regard to cost of production. They would look chiefly at present demand on the one hand, and on the other at the stocks of the commodity already available. It is true that they would pay some attention to such movements of production in the near future as might throw their shadow before; but in the case of perishable goods they would look only a very little way beyond the immediate present. Cost of production has for instance no perceptible influence on the day's bargaining in a fish-market.

Chs. III. IV. V. Equilibrium of normal demand and supply.

In a rigidly stationary state in which supply could be perfectly adjusted to demand in every particular, the normal expenses of production, the marginal expenses, and the average expenses (rent being counted in) would be one and the same thing, for long periods and for short. But, as it is, the language both of professed writers on

V, xv, 1.

economics and of men of business shows much elasticity in the use of the term Normal when applied to the causes that determine value. And one fairly well marked division needs study.

The element of time.

Long period or true normal price.

On the one side of this division are long periods, in which the normal action of economic forces has time to work itself out more fully; in which therefore a temporary scarcity of skilled labour, or of any other of the agents of production, can be remedied; and in which those economies that normally result from an increase in the scale of production—normally, that is without the aid of any substantive new invention—have time to develop themselves. The expenses of a representative firm, managed with normal ability and having normal access to the internal and external economies of production on a large scale, may be taken as a standard for estimating normal expenses of production: and when the period under survey is long enough to enable the investment of capital in building up a new business to complete itself and to bear full fruits; then the marginal supply price is that, the expectation of which in the long run just suffices to induce capitalists to invest their material capital, and workers of all grades to invest their personal capital in the trade.

Short-period normal price or sub-normal price.

On the other side of the line of division are periods of time long enough to enable producers to adapt their production to changes in demand, in so far as that can be done with the existing provision of specialized skill, specialized capital, and industrial organization; but not long enough to enable them to make any important changes in the supplies of these factors of production. For such periods the stock of material and personal appliances of production has to be taken in a great measure for granted; and the marginal increment of supply is determined by estimates of producers as to the amount of production it is worth their while to get out of those appliances. If trade is brisk all energies are strained to their utmost, overtime is worked, and then the limit to production is given by want of power rather than by want of will to go farther or faster. But if trade is slack every producer has to make up his mind how near to prime cost it is worth his while to take fresh orders. And here there is no definite law, the chief operative force is the fear of spoiling the market; and that acts in different ways and with different strengths on different individuals and different industrial groups. For the chief motive of all open combinations and of all informal silent and "customary" understandings whether among employers or employed is the need for preventing individuals from spoiling the common market by action that may bring them immediate gains, but at the cost of a greater aggregate loss to the trade.

§ 2. We next turned aside to consider the relations of demand and supply with reference to things that need to be combined together for the purposes of satisfying a joint demand; of which the most important instance is that of the specialized material capital, and the specialized personal skill that must work together in any trade. For there is no direct demand on the part of consumers for either alone, but only for the two conjointly; the demand for either separately is a derived demand, which rises, other things being equal, with every increase in the demand for the common products, and with every diminution in the supply price of the joint factors of production. In like manner commodities of which there is a joint supply, such as gas and coke, or beef and hides, can each of them have only a derived supply price, governed by the expenses of the whole process of production on the one hand, and on the other by the demand for the remaining joint products. V, xv, 2, 3. Ch. VI. Joint and composite demand and supply.

The composite demand for a thing, resulting from its being used for several different purposes, and the composite supply of a thing, that has several sources of production, present no great difficulty; for the several amounts demanded for the different purposes, or supplied from different sources, can be added together, on the same plan as was adopted in Book III., for combining the demands of the rich, the middle classes and the poor for the same commodity.

Next we made some study of the division of the supplementary costs of a business—and especially those connected with building up a trade connection, with marketing, and with insurance—among the various products of that business. Ch. VII. Distribution of supplementary costs.

§ 3. Returning to those central difficulties of the equilibrium of normal demand and supply which are connected with the element of time, we investigated more fully the relation between the value of an appliance for production and that of the things produced by it. Chs. VIII.—XI. The value of an appliance for production in relation to that of the things produced by it.

When different producers have different advantages for producing a thing, its price must be sufficient to cover the expenses of production of those producers who have no special and exceptional facilities; for if not they will withhold or diminish their production, and the scarcity of the amount supplied, relatively to the demand, will raise the price. When the market is in equilibrium, and the thing is being sold at a price which covers these expenses, there remains a surplus beyond their expenses for those who have the assistance of any exceptional advantages. If these advantages arise from the command over free gifts of nature, the surplus is called a producer's surplus or producer's rent: there is a surplus in any case, and if the owner of a free gift of nature lends it out to another, he can

V, xv, 4. generally get for its use a money income equivalent to this surplus.

The price of the produce is equal to the cost of production of that part of it, which is raised on the margin, that is under such unfavourable conditions as to yield no rent. The cost of this part can be reckoned up without reasoning in a circle; and the cost of other parts cannot.

If land which had been used for growing hops, is found capable of yielding a higher rent as market-garden land, the area under hops will undoubtedly be diminished; and this will raise their marginal cost of production and therefore their price. The rent which land will yield for one kind of produce, calls attention to the fact that a demand for the land for that kind of produce increases the difficulties of supply of other kinds; though it does not directly enter into those expenses. And similar arguments apply to the relation between the site values of urban land and the costs of things made on it.

Thus when we are taking a broad view of normal value, when we are investigating the causes which determine normal value "in the long run," when we are tracing the "ultimate" effects of economic causes; then the income that is derived from capital in these forms enters into the payments by which the expenses of production of the commodity in question have to be covered; and estimates as to the probable amount of that income directly control the action of the producers, who are on the margin of doubt as to whether to increase the means of production or not. But, on the other hand, when we are considering the causes which determine normal prices for a period which is short relatively to that required for largely increasing the supply of those appliances for production; then their influence on value is chiefly indirect and more or less similar to that exerted by the free gifts of nature. The shorter the period which we are considering, and the slower the process of production of those appliances, the less part will variations in the income derived from them play in checking or increasing the supply of the commodity produced by them, and in raising or lowering its supply price.

Ch. XII. The influence of the law of increasing return on supply price does not show its true character in short periods.

§ 4. This leads to the consideration of some difficulties of a technical character connected with the marginal expenses of production of a commodity that obeys the law of increasing return. The difficulties arise from the temptation to represent supply price as dependent on the amount produced, without allowing for the length of time that is necessarily occupied by each individual business in extending its internal, and still more its external organization; and in consequence they have been most conspicuous in mathematical and semi-mathematical discussions of the theory of

value. For when changes of supply price and amount produced are regarded as dependent exclusively on one another without any reference to gradual growth, it appears reasonable to argue that the marginal supply price for each individual producer is the addition to his aggregate expenses of production made by producing his last element; that this marginal price is likely in many cases to be diminished by an increase in his output much more than the demand price in the general market would be by the same cause.

Short-comings of the Statical Method.

The statical theory of equilibrium is therefore not wholly applicable to commodities which obey the law of increasing return. It should however be noted that in many industries each producer has a special market in which he is well known, and which he cannot extend quickly; and that therefore, though it might be physically possible for him to increase his output rapidly, he would run the risk of forcing down very much the demand price in his special market, or else of being driven to sell his surplus production outside on less favourable terms. And though there are industries in which each producer has access to the whole of a large market, yet in these there remain but few internal economies to be got by an increase of output, when the existing plant is already well occupied. No doubt there are industries as to which neither of these statements is true: they are in a transitional state, and it must be conceded that the statical theory of equilibrium of normal demand and supply cannot be profitably applied to them. But such cases are not numerous; and with regard to the great bulk of manufacturing industries, the connection between supply price and amount shows a fundamentally different character for short periods and for long.

For short periods, the difficulties of adjusting the internal and external organization of a business to rapid changes in output are so great that the supply price must generally be taken to rise with an increase, and to fall with a diminution in the amount produced.

Its operation in long periods.

But in long periods both the internal and the external economies of production on a large scale have time to develop themselves. The marginal supply price is not the expenses of production of any particular bale of goods: but it is the whole expenses (including insurance, and gross earnings of management) of a marginal increment in the aggregate process of production and marketing.

Ch. XIII. Changes in normal demand and supply.

§ 5. Some study of the effects of a tax, regarded as a special case of a change in the general conditions of demand and supply suggests that, when proper allowance is made for the interests of consumers, there is on abstract grounds rather less *primâ facie* cause than the earlier economists supposed, for the general doctrine of so-

V, xv, 5.

with some reference to the doctrine of Maximum Satisfaction.

called "Maximum Satisfaction"; *i.e.* for the doctrine that the free pursuit by each individual of his own immediate interest, will lead producers to turn their capital and labour, and consumers to turn their expenditure into such courses as are most conducive to the general interests. We have nothing to do at this stage of our inquiry, limited as it is to analysis of the most general character, with the important question how far, human nature being constituted as it is at present, collective action is likely to be inferior to individualistic action in energy and elasticity, in inventiveness and directness of purpose; and whether it is not therefore likely to waste through practical inefficiency more than it could save by taking account of all the interests affected by any course of action. But even without taking account of the evils arising from the unequal distribution of wealth, there is *primâ facie* reason for believing that the aggregate satisfaction, so far from being already a maximum, could be much increased by collective action in promoting the production and consumption of things in regard to which the law of increasing return acts with especial force.

Ch. XIV. *Theory of monopolies.*

This position is confirmed by the study of the theory of monopolies. It is the immediate interest of the monopolist so to adjust the production and sale of his wares as to obtain for himself the maximum net revenue, and the course which he thus adopts is unlikely to be that which affords the aggregate maximum satisfaction. The divergence between individual and collective interests is *primâ facie* less important with regard to those things which obey the law of diminishing return, than with regard to those which obey the law of increasing return: but, in the case of the latter, there is strong *primâ facie* reason for believing that it might often be to the interest of the community directly or indirectly to intervene, because a largely increased production would add much more to consumers' surplus than to the aggregate expenses of production of the goods. More exact notions on the relations of demand and supply, particularly when expressed in the form of diagrams, may help us to see what statistics should be collected, and how they should be applied in the attempt to estimate the relative magnitudes of various conflicting economic interests, public and private.

Ricardo's theory of value.

Ricardo's theory of cost of production in relation to value occupies so important a place in the history of economics that any misunderstanding as to its real character must necessarily be very mischievous; and unfortunately it is so expressed as almost to invite misunderstanding. In consequence there is a widely spread belief that it has needed to be reconstructed by the present generation of

economists. Cause is shown in Appendix I for not accepting this opinion; and for holding on the contrary that the foundations of the theory as they were left by Ricardo remain intact; that much has been added to them, and that very much has been built upon them, but that little has been taken from them. It is there argued that he knew that demand played an essential part in governing value, but that he regarded its action as less obscure than that of cost of production, and therefore passed it lightly over in the notes which he made for the use of his friends, and himself; for he never essayed to write a formal treatise: also that he regarded cost of production as dependent—not as Marx asserted him to have done on the mere quantity of labour used up in production, but—on the quality as well as quantity of that labour; together with the amount of stored up capital needed to aid labour, and the length of time during which such aid was invoked. V, xv, 5

BOOK VI

THE DISTRIBUTION OF THE NATIONAL INCOME

CHAPTER I

PRELIMINARY SURVEY OF DISTRIBUTION

The drift of Book VI. as a whole.

§ 1. The keynote of this Book is in the fact that free human beings are not brought up to their work on the same principles as a machine, a horse, or a slave. If they were, there would be very little difference between the distribution and the exchange side of value; for every agent of production would reap a return adequate to cover its own expenses of production with wear-and-tear, etc.; at all events after allowance had been made for casual failures to adjust supply to demand. But as it is, our growing power over nature makes her yield an ever larger surplus above necessaries; and this is not absorbed by an unlimited increase of the population. There remain therefore the questions:—What are the general causes which govern the distribution of this surplus among the people? What part is played by conventional necessaries, *i.e.* the Standard of Comfort? What by the influence which methods of consumption and of living generally exert on efficiency; by wants and activities, *i.e.* by the Standard of Life? What by the many-sided action of the principle of substitution, and by the struggle for survival between hand-workers and brain-workers of different classes and grades? What by the power which the use of capital gives to those in whose hands it is? What share of the general flow is turned to remunerate those who work (including here the undertaking of ventures) and "wait," as contrasted with those who work and consume at once the fruits of their endeavours? An attempt is made to give a broad answer to those and some similar questions.

Drift of Chapter I.

We shall begin a preliminary survey of the subject by noting how French and English writers a century ago represented value as governed almost wholly by cost of production, demand taking a subordinate place. Next we shall observe how near to the truth these results would be in a stationary state; and what corrections

need to be introduced in order to bring these results into harmony with the actual conditions of life and work: and thus the remainder of Chapter I will be given mainly to the demand for labour.

Drift of Chapter II.

In Chapter II we shall first consider its supply under modern conditions; and thence we shall turn to a general view of the causes which fix the broad lines of distribution of the national income between labour, and the owners of capital and land. In this rapid survey we shall pass by unnoticed many details: to fill in some of these is the task of the remainder of the Book; but others must stand over for a later Volume.

The Physiocrats assumed, in accordance with facts near at hand, that wages were at their lowest possible level,

§ 2. The simplest account of the causes which determine the distribution of the national income is that given by the French economists who just preceded Adam Smith; and it is based upon the peculiar circumstances of France in the latter half of last century. The taxes, and other exactions levied from the French peasant, were then limited only by his ability to pay; and few of the labouring classes were far from starvation. So the Economists or Physiocrats, as they were called, assumed for the sake of simplicity, that there was a natural law of population according to which the wages of labour were kept at starvation limit.[1] They did not suppose that this was true of the whole working population, but the exceptions were so few, that they thought that the general impression given by their assumption was true: somewhat in the same way as it is well to begin an account of the shape of the earth, by saying that it is an oblate spheroid, although a few mountains do project as much as a thousandth part of its radius beyond the general level.

and that much the same was true of the interest on Capital.

Again, they knew that the rate of interest in Europe had fallen during the five preceding centuries, in consequence of the fact that "economy had in general prevailed over luxury." But they were impressed very much by the sensitiveness of capital, and the quickness with which it evaded the oppressions of the tax-gatherer by retiring from his grasp; and they therefore concluded that there was no great violence in the supposition that if its profits were reduced below what they then were, capital would speedily be consumed or migrate. Accordingly they assumed, again for the

[1] Thus Turgot, who for this purpose may be reckoned with the Physiocrats, says (*Sur la Formation et Distribution des Richesses*, § VI.), "In every sort of occupation it must come to pass, and in fact it does come to pass, that the wages of the artisan are limited to that which is necessary to procure him a subsistence . . . He earns no more than his living (Il ne gagne que sa vie.)" When however Hume wrote, pointing out that this statement led to the conclusion that a tax on wages must raise wages; and that it was therefore inconsistent with the observed fact that wages are often low where taxes are high, and *vice versâ*; Turgot replied (March, 1767) to the effect that his iron law was not supposed to be fully operative in short periods, but only in long. See Say's *Turgot*, English Ed. pp. 53, etc.

VI, I, 2. sake of simplicity, that there was something like a natural, or necessary rate of profit, corresponding in some measure to the natural rate of wages; that if the current rate exceeded this necessary level, capital would grow rapidly, till it forced down the rate of profit to that level; and that, if the current rate went below that level, capital would shrink quickly, and the rate would be forced upwards again. They thought that, wages and profits being thus fixed by natural laws, the natural value of everything was governed simply as the sum of wages and profits required to remunerate the producers.[1]

These rigid assumptions were partially relaxed by Adam Smith.

Adam Smith worked out this conclusion more fully than the Physiocrats did; though it was left for Ricardo to make clear that the labour and capital needed for production must be estimated at the margin of cultivation, so as to avoid the element of rent. But Adam Smith saw also that labour and capital were not at the verge of starvation in England, as they were in France. In England the wages of a great part of the working classes were sufficient to allow much more than the mere necessaries of existence; and capital had too rich and safe a field of employment there to be likely to go out of existence, or to emigrate. So when he is carefully weighing his words, his use of the terms "the natural rate of wages," and "the natural rate of profit," has not that sharp definition and fixedness which it had in the mouths of the Physiocrats; and he goes a good way towards explaining how they are determined by the ever-fluctuating conditions of demand and supply. He even insists that the liberal reward of labour "increases the industry of the common people"; that "a plentiful subsistence increases the bodily strength of the labourer; and the comfortable hope of bettering his condition, and of ending his days perhaps in ease and plenty, animates him to exert that strength to the utmost. Where wages are high, accordingly, we shall always find the workman more active, diligent and expeditious, than where they are low; in England, for example, than in Scotland; in the neighbourhood of great towns than in remote country places."[1] And yet he some-

[1] From these premises the Physiocrats logically deduced the conclusion that the only net produce of the country disposable for the purposes of taxation is the rent of land; that when taxes are placed on capital or labour, they make it shrink till its net price rises to the natural level. The landowners have, they argued, to pay a gross price which exceeds this net price by the taxes together with all the expenses of collecting them in detail, and an equivalent for all the impediments which the tax-gatherer puts in the way of the free course of industry; and therefore the landowners would lose less in the long run if, being the owners of the only true surplus that exists, they would undertake to pay direct whatever taxes the King required; especially if the King would consent "laisser faire, laisser passer," that is, to let every one make whatever he chose, and take his labour and send his goods to whatever market he liked.

[1] *Wealth of Nations*, Bk. I. ch. VIII.

VI, I, 2.

times falls back into the old way of speaking, and thus makes careless readers suppose that he believes the mean level of the wages of labour to be fixed by an iron law at the bare necessaries of life.

and by Malthus.

Malthus again, in his admirable survey of the course of wages in England from the thirteenth to the eighteenth centuries, shows how their mean level oscillated from century to century, falling sometimes down to about half a peck of corn a day, and rising sometimes up to a peck and a half or even, in the fifteenth century, to about two pecks. But although he observes that " an inferior mode of living may be a cause as well as a consequence of poverty," he traces this effect almost exclusively to the consequent increase of numbers; he does not anticipate the stress which economists of our own generation lay on the influence which habits of living exercise on the efficiency, and therefore on the earning power of the labourer.[1]

Ricardo appeared to hold the so-called "iron law of wages"; but in fact he regarded wages as largely governed by a mutable standard of life.

Ricardo's language is even more unguarded than that of Adam Smith and Malthus. It is true, indeed, that he says distinctly [2] :— " It is not to be understood that the natural price of labour estimated in food and necessaries is absolutely fixed and constant . . . It essentially depends on the habits and customs of the people." But, having said this once, he does not take the trouble to repeat it constantly; and most of his readers forget that he says it. In the course of his argument he frequently adopts a mode of speaking similar to that of Turgot and the Physiocrats [3]; and seems to imply that the tendency of population to increase rapidly as soon as wages rise above the bare necessaries of life, causes wages to be fixed by " a natural law " to the level of these bare necessaries. This law has been called, especially in Germany, Ricardo's " iron " or " brazen " law : many German socialists believe that this law is in operation now even in the western world; and that it will continue to be so, as long as the plan on which production is organized remains " capitalistic " or " individualistic "; and they claim Ricardo as an authority on their side.[4]

In fact, however, Ricardo was not only aware that the necessary or natural limit of wages was fixed by no iron law, but is determined by the local conditions and habits of each place and time : he was

[1] *Political Economy*, IV. 2. There is some doubt as to the extent of the rise of real wages in the fifteenth century. It is only in the last two generations that the real wages of common labour in England have exceeded two pecks.

[2] *Principles*, v.

[3] Compare above, IV. III. 8.

[4] Some German economists, who are not socialists, and who believe that no such law exists, yet maintain that the doctrines of Ricardo and his followers stand or fall with the truth of this law; while others (*e.g.* Roscher, *Gesch. der Nat. Oek. in Deutschland*, p. 1022) protest against the socialist misunderstandings of Ricardo.

VI, I, 2. further keenly sensitive to the importance of a higher "standard of living," and called on the friends of humanity to exert themselves to encourage the growth of a resolve among the working classes not to allow their wages to fall anywhere near the bare necessaries of life.[1]

The persistency with which many writers continue to attribute to him a belief in the "iron law" can be accounted for only by his delight "in imagining strong cases," and his habit of not repeating a hint, which he had once given, that he was omitting for the sake of simplicity the conditions and limitations that were needed to make his results applicable to real life.[2]

Mill also insisted on the progressive deterioration caused by unduly low wages.

Mill did not make any great advance in the theory of wages beyond his predecessors, in spite of the care with which he set himself to emphasize the distinctly human element in economics. He, however, followed Malthus in dwelling on those lessons of history which show that, if a fall of wages caused the labouring classes to lower their standard of comfort "the injury done to them will be permanent, and their deteriorated condition will become a new minimum tending to perpetuate itself as the more ample minimum did before." [3]

But it was only in the last generation that a careful study was

[1] It may be well to quote his words. "The friends of humanity cannot but wish that in all countries the labouring classes should have a taste for comforts and enjoyments, and that they should be stimulated by all legal means in their exertions to procure them. There cannot be a better security against a super-abundant population. In those countries, where the labouring classes have the fewest wants, and are contented with the cheapest food, the people are exposed to the greatest vicissitudes and miseries. They have no place of refuge from calamity; they cannot seek safety in a lower station; they are already so low, that they can fall no lower. On any deficiency of the chief article of their subsistence, there are few substitutes of which they can avail themselves, and dearth to them is attended with almost all the evils of famine." (*Principles*, ch. v.) It is noteworthy that McCulloch, who has been charged, not altogether unjustly, with having adopted the extremest tenets of Ricardo, and applied them harshly and rigidly, yet chooses for the heading of the fourth Chapter of his Treatise *On Wages*:—"Disadvantage of Low Wages, and of having the Labourers habitually fed on the cheapest species of food. Advantage of High Wages."

[2] This habit of Ricardo's is discussed in Appendix I. (See also V. XIV. 5.) The English classical economists frequently spoke of the minimum of wages as depending on the price of corn. But the term "corn" was used by them as short for agricultural produce in general, somewhat as Petty (*Taxes and Contributions*, ch. XIV.) speaks of "the Husbandry of Corn, which we will suppose to contain all necessaries of life, as in the Lord's Prayer we suppose the word Bread doth." Of course Ricardo took a less hopeful view of the prospects of the working classes than we do now. Even the agricultural labourer can now feed his family well and have something to spare: while even the artisan would then have required the whole of his wages, at all events after a poor harvest, to buy abundant and good food for his family. Sir W. Ashley insists on the narrowness of Ricardo's hopes as compared with those of our own age; he describes instructively the history of the passage quoted in the last note; and shows that even Lassalle did not attribute absolute rigidity to his brazen law. See Appendix I, 2.

[3] Book II. ch. XI. § 2. He had just complained that Ricardo supposed the standard of comfort to be invariable, having apparently overlooked passages such as that quoted in the last note but one. He was however well aware that Ricardo's "minimum rate of wages" depended on the prevalent standard of comfort, and had no connection with the bare necessaries of life.

begun to be made of the effects that high wages have in increasing the efficiency not only of those who receive them, but also of their children and grandchildren. In this matter the lead has been taken by Walker and other American economists; and the application of the comparative method of study to the industrial problems of different countries of the old and new worlds is forcing constantly more and more attention to the fact that highly paid labour is generally efficient and therefore not dear labour; a fact which, though it is more full of hope for the future of the human race than any other that is known to us, will be found to exercise a very complicating influence on the theory of distribution.

But the last generation was the first to study carefully the influence of wages on efficiency.

It has now become certain that the problem of distribution is much more difficult than it was thought to be by earlier economists, and that no solution of it which claims to be simple can be true. Most of the old attempts to give an easy answer to it, were really answers to imaginary questions that might have arisen in other worlds than ours, in which the conditions of life were very simple. The work done in answering these questions was not wasted. For a very difficult problem can best be solved by being broken up into pieces: and each of these simple questions contained a part of the great and difficult problem which we have to solve. Let us profit by this experience and work our way by successive steps in the remainder of this chapter towards understanding the general causes which govern the demand for labour and capital in real life.[1]

The problem is difficult: simple illustrations are needed.

§ 3. Let us begin by studying the influence of demand on the earnings of labour, drawn from an imaginary world in which everyone owns the capital that aids him in his labour; so that the problem of the relations of capital and labour do not arise in it. That is, let us suppose but little capital to be used; while everyone owns whatever capital he does use, and the gifts of nature are so abundant that they are free and unappropriated. Let us suppose, further, that everyone is not only of equal capacity, but of equal willingness to work, and does in fact work equally hard: also that all work is unskilled—or rather unspecialized in this sense, that if any two people were to change occupations, each would do as much and as good work as the other had done. Lastly, let us suppose that everyone produces things ready for sale without the aid of others, and that he himself disposes of them to their ultimate consumers: so that the demand for everything is direct.

First, all supposed industrially equal and interchangeable, population stationary;

In this case the problem of value is very simple. Things exchange for one another in proportion to the labour spent in

demand is then

[1] Compare V. v., especially §§ 2, 3.

VI, I, 4.

the main regulator of distribution;

producing them. If the supply of any one thing runs short, it may for a little time sell for more than its normal price: it may exchange for things the production of which had required more labour than it had: but, if so, people will at once leave other work to produce it, and in a very short time its value will fall to the normal level. There may be slight temporary disturbances, but as a rule anyone's earnings will be equal to those of anyone else. In other words, each will have an equal share in the net sum total of things and services produced; or, as we may say, the *national income* or *dividend*; which will constitute the demand for labour.[1]

If now a new invention doubles the efficiency of work in any trade, so that a man can make twice as many things of a certain kind in a year without requiring additional appliances, then those things will fall to half their old exchange value. The effective demand for everyone's labour will be a little increased, and the share which each can draw from the common earnings-stream will be a little larger than before. He may if he chooses take twice as many things of this particular kind, together with his old allowance of other things: or he may take somewhat more than before of everything. If there be an increase in the efficiency of production in many trades the common earnings-stream or dividend will be considerably larger; the commodities produced by those trades will constitute a considerably larger demand for those produced by others, and increase the purchasing power of everyone's earnings.

as also in the next case, in which population is stationary, and all are industrially equal but each has his own trade;

§ 4. Nor will the position be greatly changed if we suppose that some specialized skill is required in each trade, provided other things remain as before: that is, provided the workers are still supposed to be all of equal capacity and industry; and all trades to be equally agreeable and equally easy to be learnt. The normal rate of earnings will still be the same in all trades; for if a day's labour in one trade produces things that sell for more than a day's labour in others, and this inequality shows any signs of lasting, people will bring up their children by preference to the favoured trade. It is true that there may be some slight irregularities. The drifting from one trade to another must occupy time; and some trades may for a while get more than their normal share of the earnings-stream, while others get less, or even lack work. But in spite of these disturbances, the current value of everything will fluctuate about its normal value; which will in this case, as in the preceding, depend simply on the amount of labour spent on the thing: for the normal value of all kinds of labour will still be equal. The productive power

[1] See below, § 10.

of the community will have been increased by the division of labour; the common national dividend or earnings-stream will be larger; and as all will, putting aside passing disturbances, share alike in it, each will be able to buy with the fruits of his own labour things more serviceable to him than he could have produced for himself.

In this stage, as in those considered before, it is still true that the value of each thing corresponds closely to the amount of labour spent upon it; and that the earnings of everyone are governed simply by the bounty of nature and by the progress of the arts of production.

and again if population increases, but not under the influence of economic causes, all workers still belonging to one grade;

§ 5. Next, let us still neglect the influence which the liberality of the expenditure on rearing and training workers exerts on their efficiency, leaving that matter to be discussed with other aspects of the supply side of distribution in the next chapter: and let us look at the influence that changes in the numbers of the population exert on the incomes which nature will yield. We suppose then that the growth of population proceeds at a rate, which is either fixed; or, at all events, not affected by the rate of wages: it may be influenced by changes in custom, in moral opinion and in medical knowledge. And we still suppose all labour to be of the same grade, and the national dividend to be divided out equally to each family, save for some slight passing inequalities. In this case every improvement in the arts of production or transport, every new discovery, every new victory over nature will increase equally the comforts and luxuries at the command of each family.

even though the tendency to diminishing return asserts itself.

But this case differs from the last; because in this case, the increase of population, if maintained long enough, must ultimately outgrow the improvements in the arts of production, and cause the law of diminishing return to assert itself in agriculture. That is to say, those who work on the land will get less wheat and other produce in return for their labour and capital. An hour's labour will represent a less quantity of wheat than before throughout the agricultural trades, and therefore throughout all other trades; since all labour is supposed to be of the same grade, and earnings are therefore as a rule equal in all trades.

Further we must note that the surplus or rental value of land will tend to rise. For the value of any kind of produce must equal that of the labour, aided on our supposition by a uniform quantity of capital throughout, which is required to produce it, whether on good land or bad, under barely remunerative, or marginal conditions. More labour and capital than before will be needed to raise a quarter of wheat, etc., on the margin; and therefore the wheat, etc., which is returned by nature to the labour applied under

VI, I, 6, 7. advantageous circumstances, will have a higher value relatively to that labour and capital than before: or, in other words, it will yield a larger surplus value over that of the labour and capital used in raising it.

If there are many grades, but the numbers in each grade are not governed by economic causes, demand is still the main regulator of value.

§ 6. Let us now drop the supposition that labour is so mobile as to ensure equal remuneration for equal efforts, throughout the whole of society, and let us approach much nearer to the actual condition of life by supposing that labour is not all of one industrial grade, but of several. Let us suppose that parents always bring up their children to an occupation in their own grade; that they have a free choice within that grade, but not outside it. Lastly, let us suppose that the increase of numbers in each grade is governed by other than economic causes: as before it may be fixed, or it may be influenced by changes in custom, in moral opinion, etc. In this case also the aggregate national dividend will be governed by the abundance of nature's return to man's work in the existing state of the arts of production; but the distribution of that dividend between the different grades will be unequal. It will be governed by the demand of the people themselves. The share of those in any industrial compartment will be the higher, the more extensive and urgent the needs which they are able to satisfy on the part of those who are themselves drawing large shares of the national income.

Suppose, for instance, artists to form a grade or caste or industrial compartment by themselves; then, their number being fixed, or at least controlled by causes independent of their earnings, their earnings will be governed by the resources and the eagerness of those classes of the population who care for such gratifications as artists can furnish.

Return to the real conditions of life, which are however considered only on the side of demand.

§ 7. We may now leave the imaginary world, in which everyone owns the capital that aids him in his work; and return to our own, where the relations of labour and capital play a great part in the problem of distribution. But let us still confine our attention to the distribution of the national dividend among the various agents of production, in accordance with the quantity of each agent, and the services which it renders; and leave the reflex influence which the remuneration of each agent exerts on the supply of that agent, to be considered in the next chapter.

Margin at which the further application of an agent of production ceases to be profitable,

We have seen how the alert business man is ever seeking for the most profitable application of his resources, and endeavouring to make use of each several agent of production up to that margin, or limit, at which he would gain by transferring a small part of his expenditure to some other agent; and how he is thus, so far as his influence goes, the medium through which the principle of substitu-

tion so adjusts the employment of each agent that, in its marginal application, its cost is proportionate to the additional net product resulting from its use. We have to apply this general reasoning to the case of the hire of labour.[1] VI, I, 7.

illustrated by the case of labour.

A question constantly in the mind of the careful business man is whether he has the right number of men for his work. In some cases that is settled for him by his plant: there must be one and only one engine-driver on each express locomotive. But some express trains have only one guard; and when the traffic is heavy they may lose a few minutes which could be saved by a second guard: therefore an alert manager is constantly weighing the net product in saving of time and of annoyance to passengers, that will accrue from the aid of a second guard on an important train, and considering whether it will be worth its cost. This question is similar in kind to, but simpler in form than, the question whether "it would pay" to put an additional train on the time-table, which would call for more expenditure on plant as well as on labour.

A *marginal* employee.

Again one sometimes hears it said that a certain farmer starves his land for labour. Perhaps he has enough horses and plant; but "if he took on another man, he would get his money back, and a good deal more": that is, the net product of an additional man would more than cover his wages. Let us suppose that a farmer is raising such a question as to the number of his shepherds. For simplicity, we may suppose that an additional man would not require any further expenditure on plant or stock: that he would save the farmer himself just as much trouble in some ways as he gives in others; so that nothing has to be allowed for earnings of management (even when these are interpreted broadly so as to include insurance against risk, etc.): and lastly that the farmer reckons that he would do just so much in preventing the wastage of lambs, and in others ways as will increase by twenty his annual output of sheep in good condition. That is to say, he reckons that the net product of an additional man will be twenty sheep. If he can be got for much less than the equivalent of their price, the alert farmer will certainly hire him; but, if only for about that price, the farmer will be on the margin of doubt; and the man may then be called a *marginal* shepherd, because his employment is marginal.

[1] See above V. IV. 1–4. A little later we shall have to consider in what respects the hire of human labour differs from the hire of a house or a machine: but, for the present, we may neglect this difference, and look at the problem only in its broad outlines. Even so, some technical difficulties will be passed on the way: and those readers, who, in accordance with the suggestion made at the end of V. VII., have omitted the later chapters of that Book, must be asked, if dissatisfied with the general treatment offered here, to turn back and read V. VIII. and IX.

VI, I, 7.

He is to be supposed of normal efficiency, and working under normal conditions.

It is best to assume throughout that the man is of normal efficiency. He would indeed be the marginal shepherd even if he were of exceptional efficiency, provided only that his net produce were equal to his wages: the farmer might have reckoned that a shepherd of normal efficiency would have added only sixteen sheep to output; and therefore have been willing to hire this man at a quarter more than the ordinary wages. But to assume him to be thus exceptional would be most inexpedient. He should be representative: that is, of normal efficiency.[1]

[1] See the remarks on labour standardization below, VI. XIII. 8, 9.

An arithmetical illustration is given in the following table. Column (2) represents the number of sheep that might probably be marketed annually, together with a due complement of wool, from a large British sheep run if worked by 8, 9, 10, 11 and 12 shepherds respectively. (In Australasia, where men are scarce, land is abundant, and a sheep of relatively small value, there are often less than ten men, except at shearing time, to each 2,000 sheep; Sir Albert Spicer in Ashley's *British Dominions*, p. 61.) We are assuming that an increase in the number of shepherds from 8 to 12 does not increase the general expenses of working the farm; and that it takes off the shoulders of the farmer as much trouble in some directions, as it imposes in others: so that there is nothing to be reckoned either way on these accounts. Accordingly the product due to each successive additional man, set out in column (3), is the excess of the corresponding number in column (2) over the preceding number in that same column (2). Column (4) is got by dividing the numbers in column (2) by those in column (1). Column (5) shows the cost for shepherds' labour at the rate of 20 sheep per man. Column (6) shows the surplus remaining for general expenses, including farmer's profit and rent.

(1) Number of shepherds.	(2) Number of sheep.	(3) Product due to last man.	(4) Average product per man.	(5) Wages bill.	(6) Excess of (2) over (5).
8	580	—	72½	160	420
9	615	35	68⅓	180	435
10	640	25	64	200	440
11	660	20	60	220	440
12	676	16	56⅓	240	436

As we move downwards the figures in (3) constantly diminish; but those in (6) increase, then remain without change, and at last diminish. This indicates that the farmer's interests are equally served by hiring 10 or 11 men; but that they are less well served by hiring 8, or 9, or 12. The eleventh man (supposed to be of *normal* efficiency) is the marginal man, when the markets for labour and sheep are such that one man can be hired for a year for the price of 20 sheep. If the markets had put that hire at 25 sheep, the numbers in (6) would have been 380, 390, 390, 385 and 376 respectively. Therefore that particular farmer would *probably* have employed one less shepherd, and sent less sheep to market; and among many sheep farmers there would *certainly* have been a large proportion who would have done so.

It has been argued at length in regard to similar cases (see V. VIII. 4, 5) that the price which it is just worth while for the farmer to pay for this labour, merely gauges the outcome of multitudinous causes which between them govern the wages of shepherds; as the movements of a safety-valve may gauge the outcome of the multitudinous causes that govern the pressure in a boiler. Theoretically a deduction from this has to be made for the fact that, by throwing twenty extra sheep on the market, the farmer will lower the price of sheep generally, and therefore lose a little on his other sheep. This correction may be of appreciable importance in special cases. But in general discussions such as this, in which we are dealing with a very small addition to the supply thrown by one of many producers on a large market, it becomes very small (mathematically a small quantity of the second order), and may be neglected. (See above, footnote on p. 339.)

Of course the net product of the shepherd in this exceptional case plays no greater part in governing the wages of shepherds, than does that of any of the marginal shepherds on farms where they cannot be profitably employed without considerable extra outlay in other directions; as for land, buildings, implements, labour of management, etc.

If he is representative, and his employer is representative, the twenty sheep will represent the net product and therefore the earning power of a shepherd. But if the employer is a bad manager, if for instance he lets his men run short of necessaries for the sheep, the man may save only fifteen sheep instead of twenty. Net product tends to represent normal wages only if the worker and his conditions of employment are both normal.

The additional product to be got by this shepherd's labour is largely influenced by the number of shepherds whom the farmer already employs. And this again is governed by general conditions of demand and supply, and especially by the number of those from whom the ranks of shepherds could have been recruited during the current generation; by the demand for mutton and wool and by the area from which supplies of them can be obtained; by the effectiveness of the shepherds on all other farms; and so on. And the amount of the marginal product is further largely influenced by the competition of other uses for land: the space available for sheep-farming is curtailed by the demand for land for growing timber or oats, preserving deer, etc.[1]

This illustration has been chosen from a simple industry; but, though the form may be different, the substance of the problem is the same in every industry. Subject to conditions which are indicated in the footnote, but are not important for our main purpose, the wages of every class of labour tend to be equal to the net product due to the additional labour of the marginal labourer of that class.[2]

This doctrine is not a

This doctrine has sometimes been put forward as a theory of wages. But there is no valid ground for any such pretension. The doctrine that the earnings of a worker tend to be equal to the

Column (4) in the above table is deduced from (1) and (2), just as (3) is. But the table shows how many men the farmer can afford to hire, when they are to be had at wages equivalent to the value of the number of sheep in (3), and therefore goes to the heart of the problem of wages: while (4) has no direct bearing on the problem. When therefore Mr. J. A. Hobson, remarking on a similar table of his own (in which however the numbers chosen are inappropriate to the hypothesis which he criticises), says:—"In other words the so-called final or marginal productivity turns out to be nothing other than an average productivity. . . . The whole notion that there is a marginal productivity . . . is entirely fallacious" (*The Industrial System*, p. 110), he appears to be mistaken.

[1] Compare p. 362.

[2] Such a method of illustrating the net product of a man's labour is not easily applicable to industries in which a great deal of capital and effort has to be invested in gradually building up a trade connection, and especially if they are such as obey the law of increasing return. This is a practical difficulty of the same order as those discussed in V. XII. and Appendix H. See also IV. XII.; V. VII. 1, 2; and XI. The influence of an additional man employed in any considerable business on its general economies might also be considered from a purely abstract point of view; but it is too small to be taken seriously. (See the footnote on p. 339.)

VI, I, 8.

theory of wages; net product of his work, has by itself no real meaning; since in order to estimate net product, we have to take for granted all the expenses of production of the commodity on which he works, other than his own wages.

but is a useful part of a theory. But though this objection is valid against a claim that it contains a theory of wages; it is not valid against a claim that the doctrine throws into clear light the action of one of the causes that govern wages.

Remarks generally apply to the demand for capital. § **8.** In later chapters we shall need to take other illustrations for special purposes of the principle illustrated in the last section from the case of manual labour; and in particular to show how the value of some parts of the work of business management can be measured, when it is found that the effective output of a business is increased as much by some additional superintendence, as it would be by the hire of an additional ordinary worker. Again, the earnings of a machine can sometimes be estimated by the addition to the output of a factory which it might effect in certain cases without involving any incidental extra expense.

Generalizing from the work of a particular machine to that of machinery of a given aggregate value, we may suppose that in a certain factory an extra £100 worth of machinery can be applied so as not to involve any other extra expense, and so as to add annually £4 worth to the net output of the factory, after allowing for its own wear-and-tear. If the investors of capital push it into every occupation in which it seems likely to gain a high reward; and if, after this has been done and equilibrium has been found, it still pays and only just pays to employ this machinery, we can infer from this fact that the yearly rate of interest is 4 per cent. But illustrations of this kind merely indicate part of the action of the great causes which govern value. They cannot be made into a theory of interest, any more than into a theory of wages, without reasoning in a circle.

It may however be well to carry a little further our illustration of the nature of the demand for capital for any use; and to observe the way in which the aggregate demand for it is made up of the demands for many different uses.

Illustration of the demand for capital in a particular trade. To fix the ideas, let us take some particular trade, say that of hat-making, and inquire what determines the amount of capital which it absorbs. Suppose that the rate of interest is 4 per cent. per annum on perfectly good security; and that the hat-making trade absorbs a capital of one million pounds. This implies that the hat-making trade can turn the whole million pounds' worth of capital to so good

account that they would pay 4 per cent. per annum *net* for the use of it rather than go without any of it.[1] VI, I, 8.

Some things are necessary to them; they must have not only some food, clothing, and house room, but also some circulating capital, such as raw material, and some fixed capital, such as tools and perhaps a little machinery. And though competition prevents anything more than the ordinary trade profit being got by the use of this necessary capital; yet the loss of it would be so injurious that those in the trade would have been willing to pay 50 per cent. on it, if they could not have got the use of it on easier terms. There may be other machinery which the trade would have refused to dispense with if the rate of interest had been 20 per cent. per annum, but not if it had been higher. If the rate had been 10 per cent., still more would have been used; if it had been 6 per cent., still more; if 5 per cent., still more; and finally the rate being 4 per cent. they use more still. When they have this amount, the marginal utility of the machinery, *i.e.* the utility of that machinery which it is only just worth their while to employ, is measured by 4 per cent.

A rise in the rate of interest would diminish their use of machinery; for they would avoid the use of all that did not give a net annual surplus of more than 4 per cent. on its value. And a fall in the rate of interest would lead them to demand the aid of more capital, and to introduce machinery which gave a net annual surplus of something less than 4 per cent. on its value. Again, the lower the rate of interest, the more substantial will be the style of building used for the hat-making factories and the homes of the hat-makers; and a fall in the rate of interest will lead to the employment of more capital in the hat-making trade in the form of larger stocks of raw material, and of the finished commodity in the hands of retail dealers.[2]

The aggregate demand for capital.

The methods in which capital will be applied may vary much even within the same trade. Each undertaker having regard to his own means, will push the investment of capital in his business in each several direction until what appears in his judgment to be the margin of profitableness is reached; and that margin is, as we have said, a boundary line cutting one after another every possible line of investment, and moving irregularly outwards in all directions

[1] The charge made to traders for loans is generally much more than 4 per cent. per annum; but as we shall see in chapter VI. it includes other things besides true net interest. Before the recent great destruction of capital by war, it seemed reasonable to speak of 3 per cent.: but even 4 per cent. may scarcely avail for some years after its close.

[2] Compare V. IV.: also Appendix I, 3; where some remarks are made on Jevons' doctrine of interest.

VI, I, 9. whenever there is a fall in the rate of interest at which extra capital can be obtained. Thus the demand for the loan of capital is the aggregate of the demands of all individuals in all trades; and it obeys a law similar to that which holds for the sale of commodities: just as there is a certain amount of a commodity which can find purchasers at any given price. When the price rises the amount that can be sold diminishes, and so it is with regard to the use of capital.

And as with borrowings for productive purposes, so with those of spendthrifts or governments who mortgage their future resources in order to obtain the means of immediate expenditure. It is true that their actions are often but little governed by cool calculation, and that they frequently decide how much they want to borrow with but little reference to the price they will have to pay for the loan; but still the rate of interest exercises a perceptible influence on borrowings even of this kind.

Provisional conclusion as to the influence of demand, guided by the principle of substitution, on the earnings of each agent.

§ 9. To sum up the whole in a comprehensive, if difficult, statement:—Every agent of production, land, machinery, skilled labour, unskilled labour, etc., tends to be applied in production as far as it profitably can be. If employers, and other business men, think that they can get a better result by using a little more of any one agent they will do so. They estimate the net product (that is the net increase of the money value of their total output after allowing for incidental expenses) that will be got by a little more outlay in this direction, or a little more outlay in that; and if they can gain by shifting a little of their outlay from one direction to another, they will do so.[1]

Thus then the uses of each agent of production are governed by the general conditions of demand in relation to supply: that is, on the one hand, by the urgency of all the uses to which the agent can be put, taken together with the means at the command of those who need it; and, on the other hand, by the available stocks of it. And equality is maintained between its values for each use by the constant tendency to shift it from uses, in which its services are of less value to others in which they are of greater value, in accordance with the principle of substitution.

If less use is made of unskilled labour or any agent, the reason will be that at some point at which people were on the margin of doubt whether it was worth while to use that agent, they have decided that it is not worth their while. That is what is meant by saying that we must watch the *marginal* uses, and the *marginal* efficiency

[1] This statement follows closely the lines of V. IV. and VIII.

of each agent. We must do so, simply because it is only at the margin that any of those shiftings can occur by which changed relations of supply and demand manifest themselves.

Explicit applications of this law to distribution were first made by von Thünen.

If we neglected differences between the grades of labour, and regarded all labour as of one kind, or at least as all expressed in terms of a certain kind of labour of standard efficiency, we might look for the margin of indifference between the direct application of labour and that of material capital; and we might say shortly, to quote von Thünen's words, that "the efficiency of capital must be the measure of its earnings, since if the labour of capital were cheaper than that of men, the undertaker would dismiss some of his workmen, and in the opposite case he would increase their number." [1]

But, of course, the increased competition of capital in general for employment is of a different character from the competition of machinery for employment in any single trade. The latter may push a particular kind of labour out of employment altogether; the former cannot displace labour in general, for it must cause an increased employment of the makers of those things which are used as capital. And in fact, the substitution of capital for labour is really the substitution of labour, combined with much waiting, in the place of other forms of labour combined with little waiting.[2]

Common usage is followed in delimiting income, whether that which goes into or that

§ **10.** When we speak of the national dividend, or distributable net income of the whole nation, as divided into the shares of land, labour and capital, we must be clear as to what things we are including, and what things we are excluding. It will seldom make very much difference to our argument whether we use all the terms broadly, or all the terms narrowly. But it is essential that our

[1] *Der Isolirte Staat*, II. i. p. 123. He argues (*ib.* p. 124) that therefore "the rate of interest is the element by which the relation of the efficiency of capital to that of human labour is expressed"; and finally, in words, very similar to those, which Jevons, working independently a generation later, adopted for the same purpose, he says (p. 162): "The utility of the last applied little bit of capital defines (bestimmt) the height of the rate of interest." With characteristic breadth of view, von Thunen enunciated a general law of diminishing return for successive doses of capital in any branch of production; and what he said on this subject has even now much interest, though it does not show how to reconcile the fact that an increase in the capital employed in an industry may increase the output more than in proportion, with the fact that a continued influx of capital into an industry must ultimately lower the rate of profits earned in it. His treatment of these and other great economic principles, though primitive in many respects, yet stands on a different footing from his fanciful and unreal assumptions as to the causes that determine the accumulation of capital, and as to the relations in which wages stand to the stock of capital. From these he deduces the quaint result that the natural rate of wages of labour is the geometric mean between the labourer's necessaries, and that share of the product which is due to his labour when aided by capital. By the natural rate he means the highest that can be sustained; if the labourer were to get more than this for a time, the supply of capital would, von Thünen argues, be so checked as to cause him in the long run to lose more than he gained.

[2] As von Thünen was well aware. *Ib.* p. 127. See also below, VI. II. 9, 10.

VI, I, 10. usage should be consistent throughout any one argument; and that, whatever is included on one side of the account of the demand for, and supply of, land, labour, and capital, should be included also on the other.

which comes out from the national dividend.

The labour and capital of the country, acting on its natural resources, produce annually a certain *net* aggregate of commodities, material and immaterial, including services of all kinds. The limiting word "net" is needed to provide for the using up of raw and half-finished commodities, and for the wearing out and depreciation of plant which is involved in production: all such waste must of course be deducted from the gross produce before the true or net income can be found. And net income due on account of foreign investments must be added in. (See above II. iv. 6.) This is the true net annual income, or revenue, of the country; or, the national dividend: we may, of course, estimate it for a year or for any other period. The terms National Income and National Dividend are convertible; only the latter is the more significant when we are looking at the national income in the character of the sum of the new sources of enjoyments that are available for distribution. But it is best here to follow the common practice, and not count as part of the national income or dividend anything that is not commonly counted as part of the income of the individual. Thus, unless anything is said to the contrary, the services which a person renders to himself, and those which he renders gratuitously to members of his family or friends; the benefits which he derives from using his own personal goods, or public property such as toll-free bridges, are not reckoned as parts of the national dividend, but are left to be accounted for separately.

The correlation of production and consumption.

Some part of production goes to increase the stock of raw material, machinery, etc., and does not merely replace material that has been used up, or machinery that has been worn out: and this part of the national income or dividend does not pass direct into personal consumption. But it does pass into consumption in the broad sense of the term which is commonly used by, say, a manufacturer of printing machines, when some of his stock is sold to printers. And in this broad sense it is true that all production is for consumption; that the national dividend is convertible with the aggregate of net production, and also with the aggregate of consumption. Under ordinary conditions of industry, production and consumption move together: there is no consumption except that for which the way has been prepared by appropriate production: and all production is followed by the consumption for which it was

designed. There may indeed be some miscalculation in particular branches of production; and a collapse of commercial credit may fill nearly all warehouses for a time with unsold goods. But such conditions are exceptional and are not within our present view. (See below V. XIII. 10; and Appendix J, 3.) VI, I, 10.

VI, II, 1.

CHAPTER II

PRELIMINARY SURVEY OF DISTRIBUTION, CONTINUED

Purpose of this chapter.

§ 1. As was indicated at the beginning of last chapter, we are now to supplement the study of the influence of demand on distribution, by a study of the reflex influence of remuneration on the supply of different agents of production. We have to combine the two in a preliminary general view of the parts played by cost of production and by utility or desirability in governing the distribution of the national dividend between different kinds of labour and the owners of capital and land.

Ricardo and his followers laid insufficient stress on demand; but were right in laying the greater stress on cost of production.

Ricardo and the able business men who followed in his wake took the operation of demand too much for granted as a thing which did not need to be explained: they did not emphasize it, nor study it with sufficient care; and this neglect has caused much confusion, and has obscured important truths. In the reaction, too much insistence has been laid on the fact that the earnings of every agent of production come from, and are for the time mainly governed by the value of the product which it takes part in producing; its earnings being so far governed on the same principle as the rent of land; and some have even thought it possible to constitute a complete theory of Distribution out of multifold applications of the law of rent. But they will not reach to that end. Ricardo and his followers seem to have been rightly guided by their intuitions, when they silently determined that the forces of supply were those, the study of which is the more urgent and involves the greater difficulty.

When we inquire what it is that governs the [marginal] efficiency of a factor of production, whether it be any kind of labour or material capital, we find that the immediate solution requires a knowledge of the available supply of that factor; for if the supply is increased, the thing will be applied to uses for which it is less needed, and in which it is less efficient. And the ultimate solution requires a knowledge also of the causes that determine that supply. The nominal value of everything, whether it be a particular kind of labour or capital or anything else, rests, like the keystone of an arch, balanced in equilibrium between the contending pressures of

its two opposing sides; the forces of demand press on the one side, and those of supply on the other. VI, II, 2.

The production of everything, whether an agent of production or a commodity ready for immediate consumption, is carried forward up to that limit or margin at which there is equilibrium between the forces of demand and supply. The amount of the thing and its price, the amounts of the several factors or agents of production used in making it, and their prices—all these elements mutually govern one another, and if an external cause should alter any one of them the effect of the disturbance extends to all the others.

The amounts and prices of the several agents of production mutually govern one another.

In the same way, when several balls are lying in a bowl, they mutually govern one another's positions; and again when a heavy weight is suspended by several elastic strings of different strengths and lengths (all of them being stretched) attached to different points in the ceiling, the equilibrium positions of all the strings and of the weight mutually govern one another. If any one of the strings is shortened, everything else will change its position, and the length and the tension of every other string will be altered also.

Parallel instances from physics.

§ 2. We have seen that the effective supply of any agent of production at any time depends firstly on the stock of it in existence, and secondly on the willingness of those, in whose charge it is, to apply it in production. This willingness is not decided simply by the immediate return which is expected; though there may be a lower limit, which in some cases may be described as a prime cost, below which no work will be done at all. A manufacturer for instance has no hesitation in declining to put his machinery in motion for an order that will not cover the extra direct money outlay caused by the work, together with the actual wear-and-tear of the machinery; while there are somewhat similar considerations with regard to the wear-and-tear of the worker's own strength and to the fatigue and other discommodities of his work. And, though for the present we are concerned with cost and remuneration under normal conditions rather than with the direct cost to the individual of any particular piece of work that he does; yet it may be well to make a short statement on the subject here in order to avoid misconceptions.

Influence of his remuneration on the individual's willingness to work.

It has already been noticed [1] that when a man is fresh and eager, and doing work of his own choice, it really costs him nothing. For as some socialists have urged with pardonable exaggeration, few people know how much they enjoy moderate work, till something occurs to prevent them from working altogether. But rightly or

Some work is pleasurable;

[1] See II. III. 2; IV. I. 2; IV. IX. 1.

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wrongly, most persons believe that the greater part of the work which they do, when earning their living, yields them no surplus of pleasure; but on the contrary costs them something. They are glad when the hour for stopping arrives: perhaps they forget that the earlier hours of their work have not cost them as much as the last: they are rather apt to think of nine hours' work as costing them nine times as much as the last hour; and it seldom occurs to them to think of themselves as reaping a producer's surplus or rent, through being paid for every hour at a rate sufficient to compensate them for the last, and most distressing hour.[1]

but generally, though not always, increased remuneration stimulates to increased exertions.

The longer a man works, or even is on duty, the greater is his desire for a respite, unless indeed he has become numbed by his work; while every hour's additional work gives him more pay, and brings him nearer to the stage at which his most urgent wants are satisfied; and the higher the pay, the sooner this stage is reached. It depends then on the individual, whether with growing pay new wants arise, and new desires to provide comforts for others or for himself in after years; or he is soon satiated with those enjoyments that can be gained only by work, and then craves more rest, and more opportunities for activities that are themselves pleasurable. No universal rule can be laid down; but experience seems to show that

[1] Recent discussions on the eight hours day have often turned very little on the fatigue of labour; for indeed there is much work in which there is so little exertion, either physical or mental, that what exertion there is counts rather as a relief from ennui than as fatigue. A man is on duty, bound to be ready when wanted, but perhaps not doing an hour's actual work in the day; and yet he will object to very long hours of duty because they deprive his life of variety, of opportunities for domestic and social pleasures, and perhaps of comfortable meals and rest.

If a man is free to cease his work when he likes, he does so when the advantages to be reaped by continuing seem no longer to over-balance the disadvantages. If he has to work with others, the length of his day's work is often fixed for him; and in some trades the number of days' work which he does in the year is practically fixed for him. But there are scarcely any trades, in which the amount of exertion which he puts into his work is rigidly fixed. If he be not able or willing to work up to the minimum standard that prevails where he is, he can generally find employment in another locality where the standard is lower; while the standard in each place is set by the general balancing of the advantages and disadvantages of various intensities of work by the industrial populations settled there. The cases therefore in which a man's individual volition has no part in determining the amount of work he does in a year, are as exceptional as the cases in which a man has to live in a house of a size widely different from that which he prefers, because there is none other available. It is true that a man who would rather work eight hours a day than nine at the same rate of tenpence an hour, but is compelled to work nine hours or none, suffers a loss from the ninth hour: but such cases are rare; and, when they occur, one must take the day as the unit. But the general law of costs is not disturbed by this fact, any more than the general law of utility is disturbed by the fact that a concert or a cup of tea has to be taken as a unit: and that a person who would rather pay five shillings for half a concert than ten for a whole, or twopence for half a cup of tea than fourpence for a whole cup, may incur a loss on the second half. There seems therefore to be no good foundation for the suggestion made by v. Böhm-Bawerk (*The Ultimate Standard of Value*, § IV. published in the *Zeitschrift für Volkswirtschaft*, vol. II.) that value must be determined generally by demand, without direct reference to cost, because the effective supply of labour is a fixed quantity: for even if the number of hours of work in the year were rigidly fixed, which it is not, the intensity of work would remain elastic.

the more ignorant and phlegmatic of races and of individuals, especially if they live in a southern clime, will stay at their work a shorter time, and will exert themselves less while at it, if the rate of pay rises so as to give them their accustomed enjoyments in return for less work than before. But those whose mental horizon is wider, and who have more firmness and elasticity of character, will work the harder and the longer the higher the rate of pay which is open to them; unless indeed they prefer to divert their activities to higher aims than work for material gain. But this point will need to be discussed more fully under the head of the influence of progress on value. Meanwhile we may conclude that increased remuneration causes an immediate increase in the supply of efficient work, as a rule; and that the exceptions to this rule, just noticed, are seldom on a large scale, though they are not devoid of significance.[1]

The dependence in the long run of the supply of efficient labour on the rate of earnings and on the manner in which they are spent.

§ 3. When however we turn from the immediate influence exerted by a rise in wages on the work done by an individual to its ultimate effect after a generation or two, the result is less uncertain. It is indeed true that, though a temporary improvement will give a good many young people the opportunity to marry and set up house, for which they have been waiting; yet a permanent increase of prosperity is quite as likely to lower as to raise the birth-rate. But on the other hand, an increase of wages is almost certain to diminish the death-rate, unless it has been obtained at the price of the neglect by mothers of their duties to their children. And the case is much stronger when we look at the influence of high wages on the physical and mental vigour of the coming generation.

For there is a certain consumption which is strictly necessary for each grade of work in this sense, that if any of it is curtailed the work cannot be done efficiently: the adults might indeed take good care of themselves at the expense of their children, but that would only defer the decay of efficiency for one generation. Further there are conventional necessaries, which are so strictly demanded by

[1] See ch. XII. Bad harvests, war prices, and convulsions of credit have at various times compelled some workers, men, women and children, to over-work themselves. And cases of ever-increasing exertion in return for a constantly sinking wage, though not as numerous now as is often alleged, have not been very rare in past times. They may be compared with the exertions of a failing firm to secure some return for their outlay by taking contracts at little more than enough to recompense them for their prime, or special and direct cost. And on the other hand almost every age, our own perhaps less than most others, has stories of people who in a sudden burst of prosperity, have contented themselves with the wages to be earned by very little work, and have thus contributed to bring the prosperity to a close. But such matters must be deferred till after a study of commercial fluctuations. In ordinary times the artisan, the professional man or the capitalist undertaker decides, as an individual or as a member of a trade association, what is the lowest price against which he will not strike.

VI, II, 3. custom and habit, that in fact people generally would give up much of their necessaries, strictly so called, rather than go without the greater part of these. Thirdly there are habitual comforts, which some, though not all, would not entirely relinquish even when hardly pressed. Many of these conventional necessaries and customary comforts are the embodiment of material and moral progress, and their extent varies from age to age and from place to place. The greater they are, the less economical is man as an agent of production. But if they are wisely chosen they attain in the highest degree the end of all production: for they then raise the tone of human life.

The supply of labour corresponds quickly to the demand for it, when the workers' income is spent mainly on necessaries for efficiency.

Any increase in consumption that is strictly necessary to efficiency pays its own way and adds to, as much as it draws from, the national dividend. But an increase of consumption, that is not thus necessary, can be afforded only through an increase in man's command over nature: and that can come about through advance in knowledge and the arts of production, through improved organization and access to larger and richer sources of raw material, and lastly through the growth of capital and the material means of attaining desired ends in any form.

Thus the question how closely the supply of labour responds to the demand for it, is in a great measure resolved into the question how great a part of the present consumption of the people at large consists of necessaries, strictly so called, for the life and efficiency of young and old; how much consists of conventional necessaries which theoretically could be dispensed with, but practically would be preferred by the majority of the people to some of those things that were really necessary for efficiency; and how much is really superfluous regarded as a means towards production, though of course part of it may be of supreme importance regarded as an end in itself.

Most expenditure of the working classes conduces to efficiency in backward countries.

The earlier French and English economists, as we noted at the beginning of the preceding chapter, classed nearly all the consumption of the working classes under the first head. They did so, partly for simplicity, and partly because those classes were then poor in England and very poor in France; and they inferred that the supply of labour would correspond to changes in the effective demand for it in the same way, though of course not quite as fast as that of machinery would. And an answer not very different from theirs must be given to the question with regard to the less advanced countries even now. For throughout the greater part of the world the working classes can afford but few luxuries and not even many

conventional necessaries; and any increase in their earnings would result in so great an increase of their numbers as to bring down their earnings quickly to nearly the old level at their mere expenses of rearing. Over a great part of the world wages are governed, nearly after the so-called iron or brazen law, which ties them close to the cost of rearing and sustaining a rather inefficient class of labourers.

The same is true to some extent even in the rich western world.

As regards the modern western world the answer is materially different; so great has been the recent advance in knowledge and freedom, in vigour and wealth, and in the easy access to rich distant fields for the supply of food and raw material. But it is still true even in England to-day that much the greater part of the consumption of the main body of the population conduces to sustain life and vigour; not perhaps in the most economical manner, but yet without any great waste. Doubtless some indulgences are positively harmful; but these are diminishing relatively to the rest, the chief exception perhaps being that of gambling. Most of that expenditure which is not strictly economical as a means towards efficiency, yet helps to form habits of ready resourceful enterprise, and gives that variety to life without which men become dull and stagnant, and achieve little though they may plod much; and it is well recognized that even in western countries skilled labour is generally the cheapest where wages are the highest. It may be admitted that the industrial development of Japan is tending to show that some of the more expensive conventional necessaries might conceivably be given up without a corresponding diminution of efficiency: but, though this experience may be fruitful of far-reaching results in the future, yet it has little bearing on the past and the present. It remains true that, taking man as he is, and has been hitherto, in the western world the earnings that are got by efficient labour are not much above the lowest that are needed to cover the expenses of rearing and training efficient workers, and of sustaining and bringing into activity their full energies.[1]

We conclude then that an increase of wages, unless earned under

[1] On all locomotives there is some brass or copper work designed partly for ornament, and which could be omitted or displaced without any loss to the efficiency of the steam-engine. Its amount does in fact vary with the taste of the officials who select the patterns for the engines of different railways. But it might happen that custom required such expenditure; that the custom would not yield to argument, and that the railway companies could not venture to offend against it. In that case, when dealing with periods during which the custom ruled, we should have to include the cost of that ornamental metal work in the cost of producing a certain amount of locomotive horse-power, on the same level with the cost of the piston itself. And there are many practical problems, especially such as relate to periods of but moderate length, in which conventional and real necessaries may be placed on nearly the same footing.

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General conclusion.

unwholesome conditions, almost always increases the strength, physical, mental and even moral of the coming generation; and that, other things being equal, an increase in the earnings that are to be got by labour increases its rate of growth; or, in other words, a rise in its demand-price increases the supply of it. If the state of knowledge, and of social and domestic habits be given; then the vigour of the people as a whole if not their numbers, and both the numbers and vigour of any trade in particular, may be said to have a supply-price in this sense, that there is a certain level of the demand-price which will keep them stationary; that a higher price would cause them to increase, and that a lower price would cause them to decrease.

The influences of demand and supply on wages are co-ordinate.

Thus again we see that demand and supply exert co-ordinate influences on wages; neither has a claim to predominance; any more than has either blade of a pair of scissors, or either pier of an arch. Wages tend to equal the net product of labour; its marginal productivity rules the demand-price for it; and, on the other side, wages tend to retain a close though indirect and intricate relation with the cost of rearing, training and sustaining the energy of efficient labour. The various elements of the problem mutually determine (in the sense of governing) one another; and incidentally this secures that supply-price and demand-price tend to equality: wages are not governed by demand-price nor by supply-price, but by the whole set of causes which govern demand and supply.[1]

The phrase "general rate of wages" presents difficulties.

A word should be said as to the common phrase "the general rate of wages," or "the wages of labour in general." Such phrases are convenient in a broad view of distribution, and especially when we are considering the general relations of capital and labour. But in fact there is no such thing in modern civilization as a general rate of wages. Each of a hundred or more groups of workers has its own wage problem, its own set of special causes, natural and artificial, controlling the supply-price, and limiting the number of its members; each has its own demand-price governed by the need that other agents of production have of its services.

[1] The reiteration in this section has seemed to be unavoidable in consequence of the misunderstandings of the main argument of the present Book by various critics; among whom must be included even the acute Prof. v. Böhm-Bawerk. For in the article recently quoted (see especially Section 5), he seems to hold that a self-contradiction is necessarily involved in the belief that wages correspond both to the net product of labour and also to the cost of rearing and training labour and sustaining its efficiency (or, more shortly, though less appropriately, the cost of production of labour). On the other hand the mutual interactions of the chief economic forces are set forth in an able article by Prof. Carver in the *Quarterly Journal of Economics* for July 1894; see also his *Distribution of Wealth*, ch. IV.

§ 4. Somewhat similar difficulties arise with regard to the phrase "the general rate of interest." But here the chief trouble comes from the fact that the income derived from capital already invested in particular things, such as factories or ships, is properly a quasi-rent and can be regarded as interest only on the assumption that the capital value of the investment has remained unaltered. Leaving this difficulty on one side for the present [1]; and recollecting that the phrase "the general rate of interest" applies in strictness only to the anticipated net earnings from new investments of free capital, we may resume briefly the results of our earlier studies of the growth of capital.

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There are similar but less difficulties in the phrase "the general rate of interest."

We have seen [2] that the accumulation of wealth is governed by a great variety of causes: by custom, by habits of self-control and of realizing the future, and above all by the power of family affection: security is a necessary condition for it, and the progress of knowledge and intelligence furthers it in many ways. But though saving in general is affected by many causes other than the rate of interest: and though the saving of many people is but little affected by the rate of interest; while a few, who have determined to secure an income of a certain fixed amount for themselves or their family, will save less with a high rate than with a low rate of interest: yet a strong balance of evidence seems to rest with the opinion that a rise in the rate of interest, or demand-price for saving, tends to increase the volume of saving.

Summary of earlier conclusions.

Thus then interest, being the price paid for the use of capital in any market, tends towards an equilibrium level such that the aggregate demand for capital in that market, at that rate of interest, is equal to the aggregate stock forthcoming there at that rate. If the market, which we are considering, is a small one—say a single town, or a single trade in a progressive country—an increased demand for capital in it will be promptly met by an increased supply drawn from surrounding districts or trades. But if we are considering the whole world, or even the whole of a large country as one market for capital, we cannot regard the aggregate supply of it as altered quickly and to a considerable extent by a change in the rate of interest. For the general fund of capital is the product of labour and waiting; and the extra work, and the extra waiting, to which a rise in the rate of interest would act as an incentive, would not quickly amount to much as compared with the work and waiting, of which the total existing stock of capital is the result. An extensive increase in the demand for capital in general will therefore be met

The rate of interest is determined in the long run by the two sets of forces of supply and demand respectively.

[1] See below, VI. VI. 6. [2] See IV. VII., summarized in § 10.

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for a time not so much by an increase of supply, as by a rise in the rate of interest; which will cause capital to withdraw itself partially from those uses in which its marginal utility is lowest. It is only slowly and gradually that the rise in the rate of interest will increase the total stock of capital.

Land is on a different footing from other agents of production.

§ 5. Land is on a different footing from man himself and those agents of production which are made by man; among which are included improvements made by him on the land itself.[1] For while the supplies of all other agents of production respond in various degrees and various ways to the demand for their services, land makes no such response. Thus an exceptional rise in the earnings of any class of labour, tends to increase its numbers, or efficiency, or both; and the increase in the supply of efficient work of that class tends to cheapen the services which it renders to the community. If the increase is in their numbers then the rate of earnings of each will tend downwards towards the old level. But if the increase is in their efficiency; then, though they will probably earn more per head than before, the gain to them will come from an increased national dividend, and will not be at the expense of other agents of production. And the same is true as regards capital: but it is not true as regards land. While therefore the value of land, in common with the values of other agents of production, is subject to those influences which were discussed towards the end of the preceding chapter; it is not subject to those which have been brought into the reckoning in the present discussion.

It is true that land is but a particular form of capital from the point of view of the individual manufacturer or cultivator. And land shares the influences of the laws of demand and of substitution which were discussed in the last chapter, because the existing stock of it, like the existing stock of capital or of labour of any kind, tends to be shifted from one use to another till nothing could be gained for production by any further shifting. And, so far as the discussions of the last chapter are concerned, the income that is derived from a factory, a warehouse, or a plough (allowance being made for wear-and-tear, etc.) is governed in the same way as is the income from land. In each case the income tends to equal the value of the marginal net product of the agent: in each case this is governed for the time by the total stock of the agent and the need that other agents have of its aid.

That is one side of the question. The other is that land (in an

[1] The argument of this section is put broadly. For a technical and more thorough treatment the reader is referred to V. x.

old country) does not share the reflex influences, discussed in this chapter, which a high rate of earnings exerts on the supply of other agents of production, and consequently on their contributions to the national dividend, and consequently on the real cost at which their services are purchased by other agents of production. The building an additional floor on one factory or putting an extra plough on one farm, does not generally take a floor from another factory or a plough from another farm; the nation adds a factory floor or a plough to its business as the individual does to his. There is thus a larger national dividend which is to be shared out; and in the long run the increased earnings of the manufacturer or farmer are not as a rule at the cost of other producers. In contrast to this the stock of land (in an old country) at any time is the stock for *all* time; and when a manufacturer or cultivator decides to take in a little more land to his business, he decides in effect to take it away from someone else's business. He adds a little more land to his business; but the nation adds no land to its business, the change does not in itself increase the national income.

The earnings of the several agents of production according to their marginal services, exhaust the national dividend.

§ **6.** To conclude this stage of our argument :—The net aggregate of all the commodities produced is itself the true source from which flow the demand prices for all these commodities, and therefore for the agents of production used in making them. Or, to put the same thing in another way, this national dividend is at once the aggregate net product of, and the sole source of payment for, all the agents of production within the country : it is divided up into earnings of labour; interest of capital; and lastly the producer's surplus, or rent, of land and of other differential advantages for production. It constitutes the whole of them, and the whole of it is distributed among them; and the larger it is, the larger, other things being equal, will be the share of each of them.

It is distributed among them, speaking generally, in proportion to the need which people have for their several services—*i.e.* not the *total* need, but the *marginal* need. By this is meant the need at that point, at which people are indifferent whether they purchase a little more of the services (or the fruits of the services) of one agent, or devote their further resources to purchasing the services (or the fruits of the services) of other agents. Other things being equal, each agent is likely to increase the faster, the larger the share which it gets, unless indeed it is not capable of being increased at all. But every such increase will do something towards filling up the more urgent needs for that agent; and will thus lessen the marginal need for it, and lower the price at which it can find a market. That is to

VI, II, 7. say, an increase in the proportionate share, or rate of remuneration, of any agent is likely to bring into play forces, that will reduce that share, and leave a larger proportionate share of the dividend to be shared among others. This reflex action may be slow. But, if there is no violent change in the arts of production or in the general economic condition of society, the supply of each agent will be closely governed by its cost of production : account being taken of those conventional necessaries, which constantly expand as the growing richness of the national income yields to one class after another an increasing surplus above the mere necessaries for efficiency.

An increase in the supply of any agent will benefit most other agents, but not necessarily all.

§ 7. In studying the influence which increased efficiency and increased earnings in one trade exert on the condition of others we may start from the general fact that, other things being equal, the larger the supply of any agent of production, the farther will it have to push its way into uses for which it is not specially fitted; the lower will be the demand price with which it will have to be contented in those uses in which its employment is on the verge or margin of not being found profitable; and, in so far as competition equalizes the price which it gets in all uses, this price will be its price for all uses. The extra production resulting from the increase in that agent of production will go to swell the national dividend, and other agents of production will benefit thereby: but that agent itself will have to submit to a lower rate of pay.

For instance, if without any other change, capital increases fast, the rate of interest must fall; if without any other change, the number of those ready to do any particular kind of labour increases, their wages must fall. In either case there will result an increased production, and an increased national dividend : in either case the loss of one agent of production must result in a gain to others; but not necessarily to all others. Thus the opening up of rich quarries of slate or the increase in numbers or efficiency of quarry-men, would tend to improve the houses of all classes; and it would tend to increase the demand for bricklayers' and carpenters' labour, and raise their wages. But it would injure the makers of roofing tiles as producers of building materials, more than it benefited them as consumers. The increase in the supply of this one agent increases the demand for many others by a little, and for some others by much; but for some it lessens the demand.

Wages of a worker expressed provision.

We know that the wages of any worker, say an operative in a boot and shoe factory, tend to equal the net product of his labour. They are not governed by that net product; for net products, like

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ally in terms of net products of workers of various grades.

all other incidents of marginal uses, are governed together with value by the general relations of demand and supply.[1] But when, (1) the aggregate application of capital and labour to the boot and shoe industry up to that limit, at which the additional products resulting from any further application could barely be made at profitable rates; (2) the distribution of resources between plant, labour, and other agents of production has been appropriately made; (3) we have in view a factory, working with normally good fortune, conducted with normal ability, and where the conditions are such that there is a doubt whether to take on an additional operative of normal ability and energy, who offers himself at the normal wage :— when all these things are done, then we may fairly conclude that the loss of that man's work would be likely to cause a diminution in the net output of that factory, the value of which was about equal to his wages. The inversion of this statement runs that his wages are about equal to that net product : (of course the net product of an individual cannot be separated mechanically from that of others who are working together with him).[2]

The work done by the various classes of operatives in a boot and shoe factory is not all of the same difficulty : but we may ignore differences in industrial rank between the classes, and suppose them to be all of the same rank. (This supposition greatly simplifies the wording of the argument, without affecting its general character.)

Now under the rapidly changing conditions of modern work, one industry or another is apt to be from time to time rather over supplied or rather under supplied with labour : and these inevitable inequalities are apt to be increased by restrictive combinations and other influences. But yet the fluidity of labour is sufficient to make it true that the wages of labour of the same industrial grade or rank tend to equality in different occupations throughout the same western country. Accordingly no considerable inaccuracy is involved in the statement that in general, every worker of the same industrial rank with a normal boot-operative will be able to buy a pair of boots of any kind (after providing the cost of their material), with the wages earned by him, in about the same time as is required by such an operative to contribute a pair of boots of that kind to the net product of his factory. Putting this statement into a more general form we may say that every worker will in general be able with the

[1] See V. VIII. 5; and VI. I. 7.

[2] See above pp. 428–9. The net product of a factory is now commonly taken, as it is in the official Census of Production, to be the work which it puts into its material : thus the value of its net product is the excess of the gross value of its output over the value of the material used by it.

VI, II, 8. earnings of a hundred days' labour to buy the net products of a hundred days' labour of other workers in the same grade with himself: he may select them in whatever way he chooses, so as to make up that aggregate sum.

If the normal earnings of workers in another grade are half as high again as his own, the boot-operative must spend three days' wages in order to get the net product of two days' labour of a worker in that grade; and so in proportion.

Increased efficiency in any trade tends to raise real wages in others.

Thus, other things being equal, every increase in the net efficiency of labour in any trade, including his own, will raise in the same proportion the real value of that part of his wages which the boot-operative spends on the products of that trade; and other things being equal, the equilibrium level of the real wages of the boot-operative depends directly on, and varies directly with, the average efficiency of the trades, including his own, which produce those things on which he spends his wages. Conversely, the rejection by the workers in any industry of an improvement, by which its efficiency could be increased ten per cent., inflicts on the boot-operative an injury measured by ten per cent. of that part of his wages which he spends on the products of that industry. But an increased efficiency on the part of workers, whose products compete with his own, may injure him temporarily at least, especially if he is not himself a consumer of those products.

The relations between grades. An increased supply of business ability raises the wages of manual labour.

Again, the boot-operative will gain by anything that changes the relative positions of different grades in such a way as to raise his grade relatively to others. He will gain by an increase of medical men whose aid he occasionally needs. And he will gain more if those grades which are occupied chiefly with the tasks of managing business, whether manufacturing, trading, or any other, receive a great influx from other grades: for then the earnings of management will be lowered permanently relatively to the earnings of manual work, there will be a rise in the net product of every kind of manual labour; and, other things being equal, the boot-operative will get more of every commodity on which he spends those wages that represent his own net product.

We do not assume perfect knowledge and freedom of competition,

§ 8. The process of substitution, of which we have been discussing the tendencies, is one form of competition; and it may be well to insist again that we do not assume that competition is perfect. Perfect competition requires a perfect knowledge of the state of the market; and though no great departure from the actual facts of life is involved in assuming this knowledge on the part of dealers when we are considering the course of business in Lombard Street,

the Stock Exchange, or in a wholesale Produce Market; it would be an altogether unreasonable assumption to make when we are examining the causes that govern the supply of labour in any of the lower grades of industry. For if a man had sufficient ability to know everything about the market for his labour, he would have too much to remain long in a low grade. The older economists, in constant contact as they were with the actual facts of business life, must have known this well enough; but partly for brevity and simplicity, partly because the term "free competition" had become almost a catchword, partly because they had not sufficiently classified and conditioned their doctrines, they often seemed to imply that they did assume this perfect knowledge.

but only the enterprise and business habits which are in fact normal to each several rank of industry.

It is therefore specially important to insist that we do not assume the members of any industrial group to be endowed with more ability and forethought, or to be governed by motives other than those which are in fact normal to, and would be attributed by every well-informed person to, the members of that group; account being taken of the general conditions of time and place. There may be a good deal of wayward and impulsive action, sordid and noble motives may mingle their threads together; but there is a constant tendency for each man to select such occupations for himself and his children as seem to him on the whole the most advantageous of those which are within the range of his resources, and of the efforts which he is able and willing to make in order to reach them.[1]

We pass to the relations of capital and labour in general. There is a real if restricted competition for the field of employment between capital and labour.

§ 9. The last group of questions, which still remain to be discussed, is concerned with the relation of capital in general to wages in general. It is obvious that though capital in general is constantly competing with labour for the field of employment in particular trades; yet since capital itself is the embodiment of labour as well as of waiting, the competition is really between some kinds of labour aided by a good deal of waiting, and other kinds of labour aided by less waiting. When for instance it is said that "capitalistic machinery has displaced much labour that was employed in making boots," what is meant is, that formerly there were many who made boots by hand, and a very few who made awls and other simple implements, aided by a little waiting; while now there are rather fewer persons occupied in boot making; and they make a much larger number of boots than before by aid of powerful machines, made by engineers aided by a good deal of waiting. There is a real and effective competition between labour in general and waiting in

[1] Differences between the adjustments of demand and supply in the case of commodities and in the case of labour are discussed in the following chapters.

VI, II, 10. general. But it covers a small part of the whole field, and is of small importance relatively to the benefits which labour derives from obtaining cheaply the aid of capital, and therefore of efficient methods in the production of things that it needs.[1]

For speaking generally, an increase in the power and the willingness to save will cause the services of waiting to be pushed constantly farther; and will prevent it from obtaining employment at as high a rate of interest as before. That is, the rate of interest will constantly fall, unless indeed invention opens new advantageous uses of roundabout methods of production. But this growth of capital will increase the national dividend; open out new and rich fields for the employment of labour in other directions; and will thus more than compensate for the partial displacement of the services of labour by those of waiting.[2]

An increase of capital lowers the marginal charge for its use and raises real wages.

The increase of the national dividend owing to the growth of capital and invention is certain to affect all classes of commodities; and to enable the shoemaker, for instance, to purchase with his earnings more food and clothes, more and better supplies of water, artificial light and heat, travel, and so on. It may be admitted that a few improvements affect only commodities consumed by the rich, in the first instance at least; that no part of the corresponding increase of the national dividend goes directly to the labouring classes; and that they do not at once gain anything to compensate for the probable disturbance of some of their members in particular trades. But such cases are rare, and generally on a small scale: and even in them there is nearly always some indirect compensation. For improvements, designed for the luxuries of the rich, soon spread themselves to the comforts of other classes. And, though it is not a necessary consequence, yet in fact a cheapening of luxuries does generally lead in various ways to increased desires on the part of the rich for things made by hand and for personal services, and increases also the means at their disposal for gratifying those desires. This points to another aspect of the relation between capital in general and wages in general.

Further explanations.

§ 10. It is to be understood that the share of the national dividend, which any particular industrial class receives during the year, consists either of things that were made during the year, or of

[1] We are leaving on one side here the competition for employment between labour in the narrower sense of the term, and the work of the undertaker himself and his assistant managers and foremen. A great part of chs. VII. and VIII. is given to this difficult and important problem.

[2] Capital is here reckoned broadly: it is not confined to trade capital. This point is of secondary interest and is relegated to Appendix J, 4.

the equivalents of those things. For many of the things made, or partly made, during the year are likely to remain in the possession of capitalists and undertakers of industry and to be added to the stock of capital; while in return they, directly or indirectly, hand over to the working classes some things that had been made in previous years. VI, II, 10.

The sense in which it is true that the earnings of labour depend on advances made by capital.

The ordinary bargain between labour and capital is that the wage-receiver gets command over commodities in a form ready for immediate consumption, and in exchange carries his employer's goods a stage further towards being ready for immediate consumption. But while this is true of most employees, it is not true of those who finish the processes of production. For instance, those who put together and finish watches, give to their employers far more commodities in a form ready for immediate consumption, than they obtain as wages. And if we take one season of the year with another, so as to allow for seed and harvest time, we find that workmen as a whole hand over to their employers more finished commodities than they receive as wages. There is, however, a rather forced sense in which we may perhaps be justified in saying that the earnings of labour depend upon advances made to labour by capital. For—not to take account of machinery and factories, of ships and railroads—the houses loaned to workmen, and even the raw materials in various stages which will be worked up into commodities consumed by them, represent a far greater provision of capital for their use than the equivalent of the advances which they make to the capitalist, even when they work for a month for him before getting any wages.

The older theories of wages were working their way towards modern doctrine.

In all this then there is nothing to make the relations between capital in general and labour in general differ widely from those between any other two agents of production, in the general scheme of distribution already explained. The modern doctrine of the relations between labour and capital is the outcome to which all the earlier doctrines on the subject were working their way; and differs only in its greater exactness, completeness and homogeneity, from that given by Mill in the third chapter of his fourth book; the only place in which he collects together all the various elements of the problem.

The broad theory of distribution already given covers the

To conclude another stage of the argument:—Capital in general and labour in general co-operate in the production of the national dividend, and draw from it their earnings in the measure of their respective (marginal) efficiencies. Their mutual dependence is of the closest; capital without labour is dead; the labourer without

VI, II. 10. the aid of his own or someone else's capital would not long be alive.

general relations of capital and labour

Where labour is energetic, capital reaps a high reward and grows apace; and, thanks to capital and knowledge, the ordinary labourer in the western world is in many respects better fed, clothed and even housed than were princes in earlier times. The co-operation of capital and labour is as essential as that of the spinner of yarn and the weaver of cloth: there is a little priority on the part of the spinner; but that gives him no pre-eminence. The prosperity of each is bound up with the strength and activity of the other; though each may gain temporarily, if not permanently, a somewhat larger share of the national dividend at the expense of the other.

though the rôle of the undertaker is of growing importance.

In the modern world, private employers and officials of joint-stock companies, many of whom have but little capital of their own, act as the centre of the great industrial wheel. The interests of owners of capital and of workers radiate towards them and from them: and they hold the whole together in a firm grip. They will therefore take a predominant place in those discussions of fluctuations of employment and of wages, which are deferred to the second volume of this treatise; and a prominent, though not predominant, place in those discussions of the secondary features in the mode of action of demand and supply peculiar to labour, capital and land respectively, which will occupy the next eight chapters.

Appendices J and K.

In Appendix J some account will be given of the "Wages-fund" doctrine. Reason will be shown for thinking that it laid excessive stress on the side of demand for labour, to the neglect of the causes which govern its supply; and that it suggested a correlation between the *stock* of capital and the *flow* of wages, instead of the true correlation between the *flow* of the products of labour aided by capital and the flow of wages. But reason will also be given for the opinion that the classical economists themselves—though perhaps not nearly all their followers—if cross examined, would have explained away the misleading suggestions of the doctrine; and thus have brought it into close accord, so far as it went, with modern doctrines. In Appendix K some study will be made of the various kinds of producers' and consumers' surpluses; raising questions of some abstract interest, but of little practical importance.

Our problem is too complex to be focused in a single view

As has already been intimated, the efficiencies (total and marginal) of the several factors of production, their contributions direct and indirect to the aggregate net product, or national dividend; and the shares of that dividend which accrue to them severally are correlated by a number of mutual interactions so complicated, that it is impossible to comprehend the whole in a single statement.

But yet by aid of the terse, compact, precise language of Mathematics it is possible to lead up to a fairly unified general view; though of course it can take no account of differences of quality, except in so far as they can be interpreted more or less crudely into differences of quantity.[1]

without technical language.

[1] Such a survey is focused in Notes XIV.–XXI. of the Mathematical Appendix: the last of them is easy of comprehension, and shows the complexity of the problems. Most of the rest are developments of details arising out of Note XIV., the substance of part of which is translated into English in V. IV.

CHAPTER III

EARNINGS OF LABOUR

The scope of the present and the following seven Chapters.

§ 1. WHEN discussing the general theory of equilibrium of demand and supply in the last Book, and the main outlines of the central problem of distribution and exchange in the first two chapters of this Book, we left on one side, as far as might be, all considerations turning on the special qualities and incidents of the agents of production. We did not inquire in detail how far the general theories of the relations between the value of an appliance for production and that of the product, which it helps to make, are applicable to the incomes earned by natural abilities, or by skill and knowledge acquired long ago, whether in the ranks of the employers, the employed, or the professional classes. We avoided difficulties connected with the analysis of Profits, paying no attention to the many different scopes which the usage of the market-place assigns to this term, and even the more elementary term Interest; and we took no account of the influence of varieties of tenure on the form of demand for land. These and some other deficiencies will be made good by more detailed analysis in the following three groups of chapters on demand and supply in relation to labour, to capital and business power, and to land, respectively.

Problems relating to methods of estimating and reckoning earnings, to which the present chapter is devoted, belong mainly to the province of arithmetic or book-keeping: but much error has arisen from treating them carelessly.

Competition tends to make weekly wages in similar employments not equal, but proportionate to the efficiency of the workers.

§ 2. When watching the action of demand and supply with regard to a material commodity, we are constantly met by the difficulty that two things which are being sold under the same name in the same market, are really not of the same quality and not of the same value to the purchasers. Or, if the things are really alike, they may be sold even in the face of the keenest competition at prices which are nominally different, because the conditions of sale are not the same: for instance, a part of the expense or risk of delivery which is borne in the one case by the seller may in the other be transferred to the buyer. But difficulties of this kind are much greater in the case of labour than of material commodities:

the true price that is paid for labour often differs widely, and in ways that are not easily traced, from that which is nominally paid. VI, III, 2.

There is a preliminary difficulty as to the term "efficiency." When it is said that about equal earnings (or rather equal "net advantages," see above II. IV. 2) are obtained in the long run in different occupations by persons of about equal *efficiency*, the term "efficiency" must be interpreted broadly. It must refer to *general* industrial efficiency, as defined above (IV. v. 1). But when reference is made to differences of earning power of different people in the same occupation, then efficiency is to be estimated with special reference to those particular elements of efficiency which are needed for that occupation.

It is commonly said that the tendency of competition is to equalize the earnings of people engaged in the same trade or in trades of equal difficulty; but this statement requires to be interpreted carefully. For competition tends to make the earnings got by two individuals of unequal efficiency in any given time, say, a day or a year, not equal, but unequal; and, in like manner, it tends not to equalize, but to render unequal the average weekly wages in two districts in which the average standards of efficiency are unequal. Given that the average strength and energy of the working-classes are higher in the North of England than in the South, it then follows that the more completely "competition makes things find their own level," the more certain is it that average weekly wages will be higher in the North than in the South.[1]

Cliffe Leslie and some other writers have naïvely laid stress on local variations of wages as tending to prove that there is very little mobility among the working-classes, and that the competition among them for employment is ineffective. But most of the facts which they quote relate only to wages reckoned by the day or week: they are only half-facts, and when the missing halves are supplied, they generally support the opposite inference to that on behalf of which they are quoted. For it is found that local variations of weekly wages and of efficiency generally correspond: and thus the facts tend to prove the effectiveness of competition, so far as they bear on the question at all. We shall however presently find that

[1] About fifty years ago correspondence between farmers in the North and the South of England led to an agreement that putting roots into a cart was an excellent measure of physical efficiency: and careful comparison showed that wages bore about the same proportion to the weights which the labourers commonly loaded in a day's work in the two districts. The standards of wages and of efficiency in the South are perhaps now more nearly on a level with those in the North than they were then. But the standard trade union wages are generally higher in the North than in the South: and many men, who go North to reach the higher rate, find that they cannot do what is required, and return.

VI, III, 2. the full interpretation of such facts as these is a task of great difficulty and complexity.

Time-earnings. The earnings, or wages, which a person gets in any given time, such as a day, a week, or a year, may be called his *time-earnings*, or *time-wages*: and we may then say that Cliffe Leslie's instances of unequal time-wages tend on the whole to support, and not to weaken, the presumption that competition adjusts earnings in occupations of equal difficulty and in neighbouring places to the efficiency of the workers.

Payment by *piece-work.* But the ambiguity of the phrase, " the efficiency of the workers," has not yet been completely cleared away. When the payment for work of any kind is apportioned to the quantity and quality of the work turned out, it is said that uniform rates of *piece-work* wages are being paid; and if two persons work under the same conditions and with equally good appliances, they are paid in proportion to their efficiencies when they receive piece-work wages calculated by the same lists of prices for each several kind of work. If however the appliances are not equally good, a uniform rate of piece-work wages gives results disproportionate to the efficiency of the workers. If, for instance, the same lists of piece-work wages were used in cotton mills supplied with old-fashioned machinery, as in those which have the latest improvements, the apparent equality would represent a real inequality. The more effective competition is, and the more perfectly economic freedom and enterprise are developed, the more surely will the lists be higher in the mills that have old-fashioned machinery than in the others.

In order therefore to give its right meaning to the statement that economic freedom and enterprise tend to equalize wages in occupations of the same difficulty and in the same neighbourhood, we require the use of a new term. We may find it in *efficiency-wages*, or more broadly *efficiency-earnings*; that is, earnings measured, not as time-earnings are with reference to the time spent in earning them; and not as piece-work earnings are with reference to the amount of output resulting from the work by which they are earned; but with reference to the exertion of ability and *efficiency* required of the worker.

Efficiency earnings.

The tendency towards equality of efficiency-earnings. The tendency then of economic freedom and enterprise (or, in more common phrase, of competition), to cause every one's earnings to find their own level, is a tendency to equality of efficiency-earnings in the same district. This tendency will be the stronger, the greater is the mobility of labour, the less strictly specialized it is, the more keenly parents are on the look-out for the most advantageous

occupations for their children, the more rapidly they are able to adapt themselves to changes in economic conditions, and lastly the slower and the less violent these changes are.

Low-waged labour is generally dear, if working with expensive machinery.

This statement of the tendency is, however, still subject to a slight correction. For we have hitherto supposed that it is a matter of indifference to the employer whether he employs few or many people to do a piece of work, provided his total wages-bill for the work is the same. But that is not the case. Those workers who earn most in a week when paid at a given rate for their work, are those who are cheapest to their employers; and they are the cheapest also to the community, unless indeed they overstrain themselves, and work themselves out prematurely. For they use only the same amount of fixed capital as their slower fellow-workers; and, since they turn out more work, each part of it has to bear a less charge on this account. The prime costs are equal in the two cases; but the total cost of that done by those who are more efficient, and get the higher time-wages, is lower than the total cost of that done by those who get the lower time-wages at the same rate of piece-work payment.[1]

This point is seldom of much importance in out-of-door work, where there is abundance of room, and comparatively little use of expensive machinery; for then, except in the matter of superintendence, it makes very little difference to the employer, whose wages-bill for a certain piece of work is £100, whether that sum is divided between twenty efficient or thirty inefficient workers. But when expensive machinery is used which has to be proportioned to the number of workers, the employer would often find the total cost of his goods lowered if he could get twenty men to turn out for a wages-bill of £50 as much work as he had previously got done by thirty men for a wages-bill of £40. In all matters of this kind the leadership of the world lies with America, and it is not an uncommon saying there, that he is the best business man who contrives to pay the highest wages.

The corrected law then stands that the tendency of economic freedom and enterprise is generally to equalize efficiency-earnings in the same district: but where much expensive fixed capital is used, it would be to the advantage of the employer to raise the time-earnings of the more efficient workers more than in proportion to

[1] This argument would be subject to corrections in cases in which the trade admitted of the employment of more than one shift of workpeople. It would often be worth an employer's while to pay to each of two shifts as much for an eight hours' day as he now pays to one shift for a ten hours' day. For though each worker would produce less, each machine would produce more on the former than on the latter plan. But to this point we shall return.

VI, III 3. their efficiency. Of course this tendency is liable to be opposed by special customs and institutions; and, in some cases, by trades-union regulations.[1]

§ **3.** Thus much with regard to estimates of the work for which the earnings are given: but next we have to consider most carefully the facts, that in estimating the real earnings of an occupation account must be taken of many things besides its money receipts, and that on the other side of the account we must reckon for many incidental disadvantages besides those directly involved in the strain and stress of the work.

Real wages and nominal wages.

As Adam Smith says, "the *real wages* of labour may be said to consist in the quantity of the necessaries and conveniences of life that are given for it; its *nominal wages* in the quantity of money.... The labourer is rich or poor, is well or ill rewarded, in proportion to the real, not to the nominal, price of his labour."[2] But the words "that are given for it" must not be taken to apply only to the necessaries and conveniences that are directly provided by the purchaser of the labour or its products; for account must be taken also of the advantages which are attached to the occupation, and require no special outlay on his part.

Allowance must be made for variations in the purchasing power of money, with special reference to the consumption of the

In endeavouring to ascertain the real wages of an occupation at any place or time, the first step is to allow for variations in the purchasing power of the money in which nominal wages are returned. This point cannot be thoroughly dealt with till we come to treat of the theory of money as a whole. But it may be remarked in passing that this allowance would not be a simple arithmetical reckoning, even if we had perfectly accurate statistics of the history of the price of all commodities. For if we compare distant places or distant times, we find people with different wants, and different

[1] Ricardo did not overlook the importance of the distinction between variations in the amount of commodities paid to the labourer as wages, and variations in the profitableness of the labourer to his employer. He saw that the real interest of the employer lay not in the amount of wages that he paid to the labourer, but in the ratio which those wages bore to the value of the produce resulting from the labourer's work: and he decided to regard the rate of wages as measured by this ratio: and to say that wages rose when this ratio increased, and that they fell when it diminished. It is to be regretted that he did not invent some new term for this purpose; for his artificial use of a familiar term has seldom been understood by others, and was in some cases even forgotten by himself. (Compare Senior's *Political Economy*, pp. 142–8.) The variations in the productiveness of labour which he had chiefly in view were those which result from improvements in the arts of production on the one hand, and on the other from the action of the law of diminishing return, when an increase of population required larger crops to be forced from a limited soil. Had he paid careful attention to the increase in the productiveness of labour that results directly from an improvement in the labourer's condition, the position of economic science, and the real wellbeing of the country, would in all probability be now much further advanced than they are. As it is, his treatment of wages seems less instructive than that in Malthus' *Political Economy*.

[2] *Wealth of Nations*, I. v.

means of supplying those wants: and even when we confine our attention to the same time and place we find people of different classes spending their incomes in very different ways. For instance, the prices of velvet, of operatic entertainments and scientific books are not very important to the lower ranks of industry; but a fall in the price of bread or of shoe leather affects them much more than it does the higher ranks. Differences of this kind must always be borne in mind, and it is generally possible to make some sort of rough allowance for them.[1]

VI, III, 4, 5. grade of labour concerned.

§ 4. We have already noticed that a person's total real income is found by deducting from his gross income the outgoings that belong to its production; and that this gross income includes many things which do not appear in the form of money payments and are in danger of being overlooked.[2]

Allowance must be made for trade expenses.

Firstly, then, with regard to the outgoings. We do not here reckon the expenses of education, general and special, involved in the preparation for any trade: nor do we take account of the exhaustion of a person's health and strength in his work. Allowance for them may be best made in other ways. But we must deduct all trade expenses, whether they are incurred by professional men or artisans. Thus from the barrister's gross income we must deduct the rent of his office and the salary of his clerk; from the carpenter's gross income we must deduct the expenses which he incurs for tools; and when estimating the earnings of quarrymen in any district we must find out whether local custom assigns the expenses of tools and blasting powder to them or their employers. Such cases are comparatively simple; but it is more difficult to decide how large a part of the expenses, which a medical man incurs for house and carriage and social entertainments, should be regarded as trade expenses.[3]

Where wages are partly paid in kind, the allowances

§ 5. Again, when servants or shop assistants have to supply themselves at their own cost with expensive clothes, which they would not buy if free to do as they liked, the value of their wages to them is somewhat lowered by this compulsion. And when the

[1] *The Report of the Poor Law Commissioners on the Employment of Women and Children in Agriculture*, 1843, p. 297, contains some interesting specimens of yearly wages paid in Northumberland, in which very little money appeared. Here is one:— 10 bushels of wheat, 30 of oats, 10 of barley, 10 of rye, 10 of peas; a cow's keep for a year; 800 yards of potatoes; cottage and garden; coal-shed; £3 10*s*. in cash; and 2 bushels of barley in lieu of hens.

[2] See II. IV. 7.

[3] This class of questions is closely allied to those raised when discussing the definitions of Income and Capital in Book II.; where a caution has already been entered against overlooking elements of income that do not take the form of money. Earnings of many even of the professional and wage-receiving classes are in a considerable measure dependent on their being in command of some material capital.

VI, III, 6.

must be taken at their value to those who receive them, not at their cost to those who give them.

employer provides expensive liveries, houseroom and food for his servants, these are generally worth less to them than they cost to him: it is therefore an error to reckon the real wages of domestic servants, as some statisticians have done, by adding to their money wages the equivalent of the cost to their employer of everything that he provides for them.

On the other hand, when a farmer hauls coals free for his men, he chooses, of course, times when his horses have little to do, and the real addition to their earnings is much greater than the cost to him. The same applies to many perquisites and allowances, as, for instance, when the employer allows his men to have without payment commodities which though useful to them, are almost valueless to him on account of the great expenses involved in marketing them; or, again, when he allows them to buy for their own use at the wholesale price commodities which they have helped to produce. When, however, this permission to purchase is changed into an obligation to purchase, the door is open to grave abuses. The farmer who in old times used to compel his men to take from him spoilt grain at the wholesale price of good grain, was really paying them lower wages than he appeared to be. And on the whole when this so-called *truck-system* prevails in any trade in an old country, we may fairly assume that the real rate of wages is lower than the nominal.[1]

Uncertainty of success may be allowed for by striking

§ **6.** Next we have to take account of the influences exerted on the real rate of earnings in an occupation by the uncertainty of success and the inconstancy of employment in it.

We should obviously start by taking the earnings of an occupa-

[1] Employers, whose main business is in a healthy condition, are generally too busy to be willing to manage such shops unless there is some strong reason for doing so; and consequently in old countries those who have adopted the Truck system, have more often than not done so with the object of getting back by underhand ways part of the wages which they have nominally paid. They have compelled those who work at home to hire machinery and implements at exorbitant rents; they have compelled all their workpeople to buy adulterated goods at short weights and high prices; and in some cases even to spend a very large part of their wages on goods on which it was easiest to make the highest rate of profits, and especially on spirituous liquors. Mr. Lecky, for instance, records an amusing case of employers who could not resist the temptation to buy theatre tickets cheap, and compel their workpeople to buy them at full price (*History of the Eighteenth Century*, VI. p. 158). The evil is however at its worst when the shop is kept not by the employer, but by the foreman or by persons acting in concert with him; and when he, without openly saying so, gives it to be understood that those, who do not deal largely at the shop, will find it difficult to get his good word. For an employer suffers more or less from anything that injures his workpeople, while the exactions of an unjust foreman are but little held in check by regard for his own ultimate interest.

On the whole evils of this kind are now relatively small. And it must be remembered that in a new country large businesses often spring up in remote places, in which there is no access to even moderately good retail stores or shops; and then it may be necessary that the employers should supply their workpeople with nearly everything they want, either by paying part of their wages in the form of allowances of food, clothing, etc., or by opening stores for them.

tion as the average between those of the successful and unsuccessful members of it; but care is required to get the true average. For if the average earnings of those who are successful are £2000 a year, and of those who are unsuccessful are £400 a year, the average of the whole will be £1200 a year if the former group is as large as the latter; but if, as is perhaps the case with barristers, the unsuccessful are ten times as numerous as the successful, the true average is but £550. And further, many of those who have failed most completely, are likely to have left the occupation altogether, and thus to escape being counted.

VI, III, 6.

an average, as a first approximation;

And again, though, by taking this average, we obviate the necessity of making any separate allowance for insurance against risk, account generally remains to be taken of the evil of uncertainty. For there are many people of a sober steady-going temper, who like to know what is before them, and who would far rather have an appointment which offered a certain income of say £400 a year than one which was not unlikely to yield £600, but had an equal chance of affording only £200. Uncertainty, therefore, which does not appeal to great ambitions and lofty aspirations, has special attractions for very few; while it acts as a deterrent to many of those who are making their choice of a career. And as a rule the certainty of moderate success attracts more than an expectation of an uncertain success that has an equal actuarial value.

but separate allowance must be made for the evils of uncertainty and anxiety.

But on the other hand, if an occupation offers a few extremely high prizes, its attractiveness is increased out of all proportion to their aggregate value. For this there are two reasons. The first is that young men of an adventurous disposition are more attracted by the prospects of a great success than they are deterred by the fear of failure; and the second is that the social rank of an occupation depends more on the highest dignity and the best position which can be attained through it than on the average good fortune of those engaged in it. It is an old maxim of statecraft that a Government should offer a few good prizes in every department of its service: and in aristocratic countries the chief officials receive very high salaries, while those of the lower grades are comforted in the receipt of salaries below the market level for similar services by their hopes of ultimately rising to a coveted post, and by the social consideration which in such countries always attends on public officers. This arrangement has the incidental effect of favouring those who are already rich and powerful; and partly for that reason it is not adopted in democratic countries. They often go to the opposite extreme, and pay more than the market rates for their

Though a few extremely high prizes have a disproportionately great attractive force.

VI, III, 7. services to the lower ranks, and less to the upper ranks. But that plan, whatever be its merits on other grounds, is certainly an expensive one.

Similarly with regard to irregularity of employment.

We may next consider the influence which inconstancy of employment exerts on wages. It is obvious that in those occupations in which employment is irregular, the pay must be high in proportion to the work done: the medical man and the shoeblack must each receive when at work a pay which covers a sort of retaining fee for the time when he has nothing to do. If the advantages of their occupations are in other respects equal, and their work equally difficult, the bricklayer when at work must be paid a higher rate than the joiner, and the joiner than the railway guard. For work on the railways is nearly constant all the year round; while the joiner and the bricklayer are always in danger of being made idle by slackness of trade, and the bricklayer's work is further interrupted by frost and rain. The ordinary method of allowing for such interruptions is to add up the earnings for a long period of time and to take the average of them; but this is not quite satisfactory unless we assume that the rest and leisure, which a man gets when out of employment, are of no service to him directly or indirectly.[1]

This assumption may be fairly made in some cases; for waiting for work often involves so much anxiety and worry that it causes more strain than the work itself would do.[2] But that is not always so. Interruptions of work that occur in the regular course of business, and therefore raise no fears about the future, give opportunity for the system to recruit itself and lay in stores of energy for future exertions. The successful barrister, for instance, is subject to a severe strain during some parts of the year; and that is itself an evil. But when allowance has been made for it, he may be regarded as losing very little by being prevented from earning any fees during the legal vacations.[3]

Supplementary earnings.

§ 7. Next we must take account of the opportunities which a man's surroundings may afford of supplementing the earnings which he gets in his chief occupation, by doing work of other kinds. And account may need to be taken also of the opportunities which these surroundings offer for the work of other members of his family.

[1] These considerations are specially important with regard to piece-work: the rates of earnings being in some cases much reduced by short supplies of material to work on, or by other interruptions, avoidable or unavoidable.

[2] The evils of irregularity of employment are trenchantly stated in a lecture on that subject given by Prof. Foxwell in 1886.

[3] Workers in the higher grades are generally allowed holidays with pay; but those in the lower grades generally forfeit their pay when they take holidays. The causes of this distinction are obvious; but it naturally raises a feeling of grievance of a kind, to which the inquiries by the Labour Commission gave vent. See *e.g.* Group B. 24, 431–6.

Family earnings.

Many economists have even proposed to take as their unit the earnings of a family: and there is much to be said for this plan with reference to agriculture and those old-fashioned domestic trades in which the whole family works together, provided that allowance is made for the loss resulting from any consequent neglect by the wife of her household duties. But in modern England trades of this kind are exceptional; the occupation of the head of a family seldom exerts much direct influence on those of its other members, except those of his sons whom he introduces into his own trade; though of course when the place in which he works is fixed, the employments, to which his family can get easy access, are limited by the resources of the neighbourhood.

The attractiveness of a trade depends not on its money-earnings, but its net advantages,

§ 8. Thus then the attractiveness of a trade depends on many other causes besides the difficulty and strain of the work to be done in it on the one hand, and the money-earnings to be got in it on the other. And when the earnings in any occupation are regarded as acting on the supply of labour in it, or when they are spoken of as being its supply price, we must always understand that the term earnings is only used as a short expression for its "net advantages."[1] We must take account of the facts that one trade is healthier or cleanlier than another, that it is carried on in a more wholesome or pleasant locality, or that it involves a better social position; as is instanced by Adam Smith's well-known remark that the aversion which many people have for the work of a butcher, and to some extent for the butcher himself, raises earnings in the butchers' trade above those in other trades of equal difficulty.

subject to differences between individuals,

Of course individual character will always assert itself in estimating particular advantages at a high or a low rate. Some persons, for instance, are so fond of having a cottage to themselves that they prefer living on low wages in the country to getting much higher wages in the town; while others are indifferent as to the amount of houseroom they get, and are willing to go without the comforts of life provided they can procure what they regard as its luxuries. This was the case, for example, with a family of whom the Royal Commission on the Housing of the Working Classes in 1884 were told: their joint earnings were £7 a week, but they chose to live in one room, so as to be able to spend money freely on excursions and amusements.

Personal peculiarities, such as these, prevent us from predicting with certainty the conduct of particular individuals. But if each advantage and disadvantage is reckoned at the average of the money values it has for the class of people who would be likely to enter an

[1] See II. IV. 2.

VI, III, 8. occupation, or to bring up their children to it, we shall have the means of estimating roughly the relative strengths of the forces that tend to increase or diminish the supply of labour in that occupation *at the time and place* which we are considering. For it cannot be too often repeated that grave errors are likely to result from taking over an estimate of this kind based on the circumstances of one time and place, and applying it without proper precaution to those of another time or another place.

between races,

In this connection it is interesting to observe the influence of differences of national temperament in our own time. Thus in America we see Swedes and Norwegians drift to agriculture in the North-west, while the Irish, if they go on the land at all, choose farms in the older Eastern States. The preponderance of Germans in the furniture and the brewing industries; of Italians in railway building; of Slavs in meat packing and in some groups of mines, and of Irish and French Canadians in some of the textile industries of the United States; and the preference of the Jewish immigrants in London for the clothing industries and for retail trade—all these are due partly to differences in national aptitudes, but partly also to differences in the estimates that people of different races form of the incidental advantages and disadvantages of different trades.

and between industrial grades.

Lastly, the disagreeableness of work seems to have very little effect in raising wages, if it is of such a kind that it can be done by those whose industrial abilities are of a very low order. For the progress of science has kept alive many people who are unfit for any but the lowest grade of work. They compete eagerly for the comparatively small quantity of work for which they are fitted, and in their urgent need they think almost exclusively of the wages they can earn: they cannot afford to pay much attention to incidental discomforts, and indeed the influence of their surroundings has prepared many of them to regard the dirtiness of an occupation as an evil of but minor importance.

An evil paradox.

Hence arises the paradoxical result that the dirtiness of some occupations is a cause of the lowness of the wages earned in them. For employers find that this dirtiness adds much to the wages they would have to pay to get the work done by skilled men of high character working with improved appliances; and so they often adhere to old methods which require only unskilled workers of but indifferent character, and who can be hired for low (Time-) wages, because they are not worth much to any employer. There is no more urgent social need than that labour of this kind should be made scarce and therefore dear.

CHAPTER IV

EARNINGS OF LABOUR, CONTINUED

Many peculiarities in the action of demand and supply with regard to labour are cumulative;

§ 1. THE action of demand and supply with regard to labour was discussed in the last chapter with reference to the difficulties of ascertaining the real as opposed to the nominal price of labour. But some peculiarities in this action remain to be studied, which are of a more vital character. For they affect not merely the form, but also the substance of the action of the forces of demand and supply; and to some extent they limit and hamper the free action of those forces. We shall find that the influence of many of them is not at all to be measured by their first and most obvious effects: and that those effects which are cumulative are generally far more important in the long run than those which are not, however prominent the latter may appear.

thus resembling the influence of custom.

The problem has thus much in common with that of tracing the economic influence of custom. For it has already been noticed, and it will become more clear as we go on, that the direct effects of custom in causing a thing to be sold for a price sometimes a little higher and sometimes a little lower than it would otherwise fetch, are not really of very great importance, because any such divergence does not, as a rule, tend to perpetuate and increase itself; but on the contrary, if it becomes considerable, it tends itself to call into action forces that counteract it. Sometimes these forces break down the custom altogether; but more often they evade it by gradual and imperceptible changes in the character of the thing sold, so that the purchaser really gets a new thing at the old price under the old name. These direct effects then are obvious, but they are not cumulative. On the other hand, the indirect effects of custom in hindering the methods of production and the character of producers from developing themselves freely are not obvious; but they generally are cumulative, and therefore exert a deep and controlling influence over the history of the world. If custom checks the progress of one generation, then the next generation starts from a lower level than it otherwise would have done; and any retardation which it suffers itself is accumulated

VI, IV, 2. and added to that of its predecessor, and so on from generation to generation.[1]

And so it is with regard to the action of demand and supply on the earnings of labour. If at any time it presses hardly on any individuals or class, the direct effects of the evils are obvious. But the sufferings that result are of different kinds: those, the effects of which end with the evil by which they were caused, are not generally to be compared in importance with those that have the indirect effect of lowering the character of the workers or of hindering it from becoming stronger. For these last cause further weakness and further suffering, which again in their turn cause yet further weakness and further suffering, and so on cumulatively. On the other hand, high earnings, and a strong character, lead to greater strength and higher earnings, which again lead to still greater strength and still higher earnings, and so on cumulatively.

First peculiarity: the worker sells his work, but retains property in himself.

§ 2. The first point to which we have to direct our attention is the fact that human agents of production are not bought and sold as machinery and other material agents of production are. The worker sells his work, but he himself remains his own property: those who bear the expenses of rearing and educating him receive but very little of the price that is paid for his services in later years.[2]

Consequently the investment of capital in him is limited by the means, the forethought, and the unselfishness of his parents.

Whatever deficiencies the modern methods of business may have, they have at least this virtue, that he who bears the expenses of production of material goods, receives the price that is paid for them. He who builds factories or steam-engines or houses, or rears slaves, reaps the benefit of all net services which they render so long as he keeps them for himself; and when he sells them he gets a price which is the estimated net value of their future services; and therefore he extends his outlay until there seems to him no good reason for thinking that the gains resulting from any further investment would compensate him. He must do this prudently and boldly, under the penalty of finding himself worsted in competition with others who follow a broader and more far-sighted policy, and

[1] It ought, however, to be remarked that some of the beneficial effects of custom are cumulative. For among the many different things that are included under the wide term "custom" are crystallized forms of high ethical principles, rules of honourable and courteous behaviour, and of the avoidance of troublesome strife about paltry gains; and much of the good influence which these exert on race character is cumulative. Compare I. II. 1, 2.

[2] This is consistent with the well-known fact that slave labour is not economical, as Adam Smith remarked long ago that "The fund destined for replacing or repairing, if I may say so, the wear-and-tear of the slave is commonly managed by a negligent master or careless overseer. That destined for performing the same office for the free man is managed by the free man himself . . . with strict frugality and parsimonious attention."

of ultimately disappearing from the ranks of those who direct the course of the world's business. The action of competition, and the survival in the struggle for existence of those who know best how to extract the greatest benefits for themselves from the environment, tend in the long run to put the building of factories and steam-engines into the hands of those who will be ready and able to incur every expense which will add more than it costs to their value as productive agents. But the investment of capital in the rearing and early training of the workers of England is limited by the resources of parents in the various grades of society, by their power of forecasting the future, and by their willingness to sacrifice themselves for the sake of their children.

This evil is comparatively small in the higher ranks of society;

This evil is indeed of comparatively small importance with regard to the higher industrial grades. For in those grades most people distinctly realize the future, and "discount it at a low rate of interest." They exert themselves much to select the best careers for their sons, and the best trainings for those careers; and they are generally willing and able to incur a considerable expense for the purpose. The professional classes especially, while generally eager to save some capital *for* their children, are even more on the alert for opportunities of investing it *in* them. And whenever there occurs in the upper grades of industry a new opening for which an extra and special education is required, the future gains need not be very high relatively to the present outlay, in order to secure a keen competition for the post.

but very great in the lower ranks,

But in the lower ranks of society the evil is great. For the slender means and education of the parents, and the comparative weakness of their power of distinctly realizing the future, prevent them from investing capital in the education and training of their children with the same free and bold enterprise with which capital is applied to improving the machinery of any well-managed factory. Many of the children of the working-classes are imperfectly fed and clothed; they are housed in a way that promotes neither physical nor moral health; they receive a school education which, though in modern England it may not be very bad so far as it goes, yet goes only a little way; they have few opportunities of getting a broader view of life or an insight into the nature of the higher work of business, of science or of art; they meet hard and exhausting toil early on the way, and for the greater part keep to it all their lives. At least they go to the grave carrying with them undeveloped abilities and faculties; which, if they could have borne full fruit, would have added to the material wealth of the country—to say nothing of higher

VI, IV, 3. considerations—many times as much as would have covered the expense of providing adequate opportunities for their development.

and the evil is cumulative.

But the point on which we have specially to insist now is that this evil is cumulative. The worse fed are the children of one generation, the less will they earn when they grow up, and the less will be their power of providing adequately for the material wants of their children; and so on to following generations. And again, the less fully their own faculties are developed, the less will they realize the importance of developing the best faculties of their children, and the less will be their power of doing so. And conversely any change that awards to the workers of one generation better earnings, together with better opportunities of developing their best qualities, will increase the material and moral advantages which they have the power to offer to their children: while by increasing their own intelligence, wisdom and forethought, such a change will also to some extent increase their willingness to sacrifice their own pleasures for the wellbeing of their children; though there is much of that willingness now even among the poorest classes, so far as their means and the limits of their knowledge will allow.

The son of the artisan has a better start in life than the son of the unskilled labourer;

§ 3. The advantages which those born in one of the higher grades of society have over those born in a lower, consist in a great measure of the better introductions and the better start in life which they receive from their parents; and the importance of this good start in life is nowhere seen more clearly than in a comparison of the fortunes of the sons of artisans and of unskilled labourers. There are not many skilled trades to which the son of an unskilled labourer can get easy access; and in the large majority of cases the son follows the father's calling. In the old-fashioned domestic industries this was almost a universal rule; and, even under modern conditions, the father has often great facilities for introducing his son to his own trade. Employers and their foremen generally give to a lad whose father they already know and trust, a preference over one for whom they would have to incur the entire responsibility. And in many trades a lad, even after he has got entrance to the works, is not very likely to make good progress and obtain a secure footing, unless he is able to work by the side of his father, or some friend of his father's, who will take the trouble to teach him and to let him do work that requires careful supervision, but has an educational value.

he is brought up in a more refined home and with more

And the son of the artisan has further advantages. He generally lives in a better and cleaner house, and under material surroundings that are more consistent with refinement than those with which the ordinary labourer is familiar. His parents are likely to be

better educated, and to have a higher notion of their duties to their children; and, last but not least, his mother is likely to be able to give more of her time to the care of her family.

of a mother's care.

The great importance of this last element.

If we compare one country of the civilized world with another, or one part of England with another, or one trade in England with another, we find that the degradation of the working-classes varies almost uniformly with the amount of rough work done by women. The most valuable of all capital is that invested in human beings; and of that capital the most precious part is the result of the care and influence of the mother, so long as she retains her tender and unselfish instincts, and has not been hardened by the strain and stress of unfeminine work.

This draws our attention to another aspect of the principle already noticed, that in estimating the cost of production of efficient labour, we must often take as our unit the family. At all events we cannot treat the cost of production of efficient men as an isolated problem; it must be taken as part of the broader problem of the cost of production of efficient men together with the women who are fitted to make their homes happy, and to bring up their children vigorous in body and mind, truthful and cleanly, gentle and brave.[1]

[1] Sir William Petty discussed "The Value of the People" with much ingenuity; and the relation in which the cost of rearing an adult male stands to the cost of rearing a family unit was examined in a thoroughly scientific manner by Cantillon, *Essai*, Part I. chap. XI., and again by Adam Smith, *Wealth of Nations*, Book I. ch. VIII.: and in more recent times by Dr. Engel, in his brilliant Essay *Der Preis der Arbeit*, and by Dr. Farr and others. Many estimates have been made of the addition to the wealth of a country caused by the arrival of an immigrant whose cost of rearing in his early years was defrayed elsewhere, and who is likely to produce more than he consumes in the country of his adoption. The estimates have been made on many plans, all of them rough, and some apparently faulty in principle: but most of them find the average value of an immigrant to be about £200. It would seem that, if we might neglect provisionally the difference between the sexes, we should calculate the value of the immigrant on the lines of the argument of V. IV. 2. That is, we should "discount" the probable value of all the future services that he would render; add them together, and deduct from them the sum of the "discounted" values of all the wealth and direct services of other persons that he would consume: and it may be noted that in thus calculating each element of production and consumption at its probable value, we have incidentally allowed for the chances of his premature death and sickness, as well as of his failure or success in life. Or again we might estimate his value at the money cost of production which his native country had incurred for him; which would in like manner be found by adding together the "accumulated" values of all the several elements of his past consumption and deducting from them the sum of the "accumulated" values of all the several elements of his past production.

So far we have taken no account of the difference between the sexes. But it is clear that the above plans put the value of the male immigrants too high and that of the female too low: unless allowance is made for the service which women render as mothers, as wives and as sisters, and the male immigrants are charged with having consumed these services, while the female immigrants are credited with having supplied them. (See Mathematical Note XXIV.)

Many writers assume, implicitly at least, that the net production of an average individual and the consumption during the whole of his life are equal; or, in other words, that he would neither add to nor take from the material wellbeing of a country, in which he stayed all his life. On this assumption the above two plans of estimating his value would be convertible; and then of course we should make our calculations

VI, IV, 4.

§ 4. As the youth grows up, the influence of his parents and his schoolmaster declines; and thenceforward to the end of his life his character is moulded chiefly by the nature of his work and the influence of those with whom he associates for business, for pleasure and for religious worship.

The technical training of the workshop depends in a great measure on the unselfishness of the employer.

A good deal has already been said of the technical training of adults, of the decadence of the old apprenticeship system, and of the difficulty of finding anything to take its place. Here again we meet the difficulty that whoever may incur the expense of investing capital in developing the abilities of the workman, those abilities will be the property of the workman himself: and thus the virtue of those who have aided him must remain for the greater part its own reward.

It is true that high-paid labour is really cheap to those employers who are aiming at leading the race, and whose ambition it is to turn out the best work by the most advanced methods. They are likely to give their men high wages and to train them carefully; partly because it pays them to do so, and partly because the character that fits them to take the lead in the arts of production is likely also to make them take a generous interest in the wellbeing of those who work for them. But though the number of such employers is increasing, they are still comparatively few. And even they cannot always afford to carry the investment of capital in the training of their men as far as they would have done, if the results of the investment accrued to them in the same way as the results of any improvements they might make in their machinery. Even they are sometimes checked by the reflection that they are in a similar position to that of a farmer who, with an uncertain tenure and no security of compensation for his improvements, is sinking capital in raising the value of his landlord's property.

Its benefits are cumulative, but accrue only in part to him or his heirs.

Again, in paying his workpeople high wages and in caring for their happiness and culture, the liberal employer confers benefits which do not end with his own generation. For the children of his workpeople share in them, and grow up stronger in body and in character than otherwise they would have done. The price which he has paid for labour will have borne the expenses of production of an increased supply of high industrial faculties in the next genera-

by the latter and easier method. We may, for instance, guess that the total amount spent on bringing up an average child of the lower half of the labouring classes, say two-fifths of the population, is £100; for the next fifth we may put the sum at £175; for the next fifth at £300; for the next tenth at £500, and the remaining tenth at £1200: or an average of £300. But of course some of the population are very young and have had but little spent on them; others have got nearly to their life's end; and therefore, on these assumptions, the average value of an individual is perhaps £200.

tion: but these faculties will be the property of others, who will have the right to hire them out for the best price they will fetch: neither he nor even his heirs can reckon on reaping much material reward for this part of the good that he has done.

Second peculiarity.

§ 5. The next of those characteristics of the action of demand and supply peculiar to labour, which we have to study, lies in the fact that when a person sells his services, he has to present himself where they are delivered. It matters nothing to the seller of bricks whether they are to be used in building a palace or a sewer: but it matters a great deal to the seller of labour, who undertakes to perform a task of given difficulty, whether or not the place in which it is to be done is a wholesome and a pleasant one, and whether or not his associates will be such as he cares to have. In those yearly hirings which still remain in some parts of England, the labourer inquires what sort of a temper his new employer has, quite as carefully as what rate of wages he pays.

The seller of labour must deliver it himself.

This peculiarity of labour is of great importance in many individual cases, but it does not often exert a broad and deep influence of the same nature as that last discussed. The more disagreeable the incidents of an occupation, the higher of course are the wages required to attract people into it: but whether these incidents do lasting and widespreading harm depends on whether they are such as to undermine men's physical health and strength or to lower their character. When they are not of this sort, they are indeed evils in themselves, but they do not generally cause other evils beyond themselves; their effects are seldom cumulative.

The effects of this are not generally cumulative, and their real importance is seldom very great.

Since however no one can deliver his labour in a market in which he is not himself present, it follows that the mobility of labour and the mobility of the labourer are convertible terms: and the unwillingness to quit home, and to leave old associations, including perhaps some loved cottage and burial-ground, will often turn the scale against a proposal to seek better wages in a new place. And when the different members of a family are engaged in different trades, and a migration, which would be advantageous to one member would be injurious to others, the inseparability of the worker from his work considerably hinders the adjustment of the supply of labour to the demand for it. But of this more hereafter.

Third and fourth peculiarities.

§ 6. Again, labour is often sold under special disadvantages, arising from the closely connected group of facts that labour power is "perishable," that the sellers of it are commonly poor and have no reserve fund, and that they cannot easily withhold it from the market.

Labour is perishable,

VI, IV, 6.

and the sellers of it are often at a disadvantage in bargaining. But many material commodities are perishable.

Perishable is an attribute common to the labour of all grades: the time lost when a worker is thrown out of employment cannot be recovered, though in some cases his energies may be refreshed by rest.[1] It must however be remembered that much of the working power of material agents of production is perishable in the same sense; for a great part of the income, which they also are prevented from earning by being thrown out of work, is completely lost. There is indeed some saving of wear-and-tear on a factory, or a steam-ship, when it is lying idle: but this is often small compared with the income which its owners have to forego: they get no compensation for their loss of interest on the capital invested, or for the depreciation which it undergoes from the action of the elements or from its tendency to be rendered obsolete by new inventions.

Again, many vendible commodities are perishable. In the strike of dock labourers in London in 1889, the perishableness of the fruit, meat, etc. on many of the ships told strongly on the side of the strikers.

Disadvantages in bargaining are greatest generally among the lowest grades of labour.

The want of reserve funds and of the power of long withholding their labour from the market is common to nearly all grades of those whose work is chiefly with their hands. But it is especially true of unskilled labourers, partly because their wages leave very little margin for saving, partly because when any group of them suspends work, there are large numbers who are capable of filling their places. And, as we shall see presently when we come to discuss trade combinations, it is more difficult for them than for skilled artisans to form themselves into strong and lasting combinations; and so to put themselves on something like terms of equality in bargaining with their employers. For it must be remembered that a man who employs a thousand others, is in himself an absolutely rigid combination to the extent of one thousand units among buyers in the labour market.

They do not attach to domestic servants,

But these statements do not apply to all kinds of labour. Domestic servants though they have not large reserve funds, and seldom any formal trades-union, are sometimes better able than their employers to act in concert. The total real wages of domestic servants of fashionable London are very high in comparison with other skilled trades in which equal skill and ability are required. But on the other hand those domestic servants who have no specialized skill, and who hire themselves to persons with very narrow means, have not been able to make even tolerably good terms for themselves: they work very hard for very low wages.

[1] See above, VI. III.

nor to professional men.

Turning next to the highest grades of industry, we find that as a rule they have the advantage in bargaining over the purchaser of their labour. Many of the professional classes are richer, have larger reserve funds, more knowledge and resolution, and much greater power of concerted action with regard to the terms on which they sell their services, than the greater number of their clients and customers.

Those sellers of commodities who are poor and numerous relatively to the purchasers are at a disadvantage in bargaining, in the same way as are the sellers of labour.

If further evidence were wanted that the disadvantages of bargaining under which the vendor of labour commonly suffers, depend on his own circumstances and qualities, and not on the fact that the particular thing which he has to sell is labour; such evidence could be found by comparing the successful barrister or solicitor or physician, or opera singer or jockey with the poorer independent producers of vendible goods. Those, for instance, who in remote places collect shell-fish to be sold in the large central markets, have little reserve funds and little knowledge of the world, and of what other producers are doing in other parts of the country: while those to whom they sell, are a small and compact body of wholesale dealers with wide knowledge and large reserve funds; and in consequence the sellers are at a great disadvantage in bargaining. And much the same is true of the women and children who sell hand-made lace, and of the garret masters of East London who sell furniture to large and powerful dealers.

The disadvantage is cumulative in two ways.

It is however certain that manual labourers as a class are at a disadvantage in bargaining; and that the disadvantage wherever it exists is likely to be cumulative in its effects. For though, so long as there is any competition among employers at all, they are likely to bid for labour something not very much less than its real value to them, that is, something not very much less than the highest price they would pay rather than go on without it; yet anything that lowers wages tends to lower the efficiency of the labourer's work, and therefore to lower the price which the employer would rather pay than go without that work. The effects of the labourer's disadvantage in bargaining are therefore cumulative in two ways. It lowers his wages; and as we have seen, this lowers his efficiency as a worker, and thereby lowers the normal value of his labour. And in addition it diminishes his efficiency as a bargainer, and thus increases the chance that he will sell his labour for less than its normal value.[1]

[1] On the subject of this Section compare Book V. II. 3, and Appendix F on Barter. Prof. Brentano was the first to call attention to several of the points discussed in this chapter. See also Howell's *Conflicts of Capital and Labour*.

CHAPTER V

EARNINGS OF LABOUR, CONTINUED

VI, v, 1.

The fifth peculiarity of labour consists in the great length of time required for providing additional supplies of specialized ability.

§ 1. The next peculiarity in the action of demand and supply with regard to labour, which we have to consider, is closely connected with some of those we have already discussed. It consists in the length of time that is required to prepare and train labour for its work, and in the slowness of the returns which result from this training. In

This discounting of the future, this deliberate adjustment of supply of expensively trained labour to the demand for it, is most clearly seen in the choice made by parents of occupations for their children, and in their efforts to raise their children into a higher grade than their own.

Adam Smith's comparison of the incomes earned by machinery and by a skilled worker.

It was these chiefly that Adam Smith had in view when he said :—" When any expensive machine is erected, the extraordinary work to be performed by it before it is worn out, it must be expected, will replace the capital laid out upon it, with at least the ordinary profits. A man educated at the expense of much labour and time to any of those employments which require extraordinary dexterity and skill, may be compared to one of those expensive machines. The work which he learns to perform, it must be expected, over and above the usual wages of common labour, will replace to him the whole expense of his education, with at least the ordinary profits of an equally valuable capital. It must do this too in a reasonable time, regard being had to the very uncertain duration of human life, in the same manner as to the more certain duration of the machine."

must be modified on account of the shortness of the lives of most machines;

though there are

But this statement is to be received only as a broad indication of general tendencies. For independently of the fact that in rearing and educating their children, parents are governed by motives different from those which induce a capitalist undertaker to erect a new machine, the period over which the earning power extends is generally greater in the case of a man than of a machine; and therefore the circumstances by which the earnings are determined are less capable of being foreseen, and the adjustment of supply to demand is both slower and more imperfect. For though factories

and houses, the main shafts of a mine and the embankments of a railway, may have much longer lives than those of the men who made them; yet these are exceptions to the general rule.

VI, v, 2.

important exceptions.

§ 2. Not much less than a generation elapses between the choice by parents of a skilled trade for one of their children, and his reaping the full results of their choice. And meanwhile the character of the trade may have been almost revolutionized by changes, of which some probably threw long shadows before them, but others were such as could not have been foreseen even by the shrewdest persons and those best acquainted with the circumstances of the trade.

Parents in choosing trades for their children must look forward a whole generation, and their forecasts are very liable to error.

The working classes in nearly all parts of England are constantly on the look-out for advantageous openings for the labour of themselves and their children; and they question friends and relations, who have settled in other districts, as to the wages that are to be got in various trades, and as to their incidental advantages and disadvantages. But it is very difficult to ascertain the causes that are likely to determine the distant future of the trades which they are selecting for their children; and there are not many who enter on this abstruse inquiry. The majority assume without a further thought that the condition of each trade in their own time sufficiently indicates what it will be in the future; and, so far as the influence of this habit extends, the supply of labour in a trade in any one generation tends to conform to its earnings not in that but in the preceding generation.

Again, some parents, observing that the earnings in one trade have been for some years rising relatively to others in the same grade, assume that the course of change is likely to continue in the same direction. But it often happens that the previous rise was due to temporary causes, and that, even if there had been no exceptional influx of labour into the trade, the rise would have been followed by a fall instead of a further rise: and, if there is such an exceptional influx, the consequence may be a supply of labour so excessive, that its earnings remain below their normal level for many years.

Next we have to recall the fact that, although there are some trades which are difficult of access except to the sons of those already in them, yet the majority draw recruits from the sons of those in other trades in the same grade: and therefore when we consider the dependence of the supply of labour on the resources of those who bear the expenses of its education and training, we must often regard the whole grade, rather than any one trade, as our

In this connection we must often take as our unit not a particular trade, but a whole grade of labour.

VI, v, 3, 4. unit; and say that, in so far as the supply of labour is limited by the funds available for defraying its cost of production, the supply of labour in any grade is determined by the earnings of that grade in the last rather than in the present generation.

It must, however, be remembered that the birth-rate in every grade of society is determined by many causes, among which deliberate calculations of the future hold but a secondary place: though, even in a country in which tradition counts for as little as it does in modern England, a great influence is exerted by custom and public opinion which are themselves the outcome of the experience of past generations.

Allowance must however be made for the movements of adult labour,

§ 3. But we must not omit to notice those adjustments of the supply of labour to the demand for it, which are effected by movements of adults from one trade to another, one grade to another, and one place to another. The movements from one grade to another can seldom be on a very large scale; although it is true that exceptional opportunities may sometimes develop rapidly a great deal of latent ability among the lower grades. Thus, for instance, the sudden opening out of a new country, or such an event as the American war, will raise from the lower ranks of labour many men who bear themselves well in difficult and responsible posts

which are of growing importance in consequence of the increasing demand for general ability.

But the movements of adult labour from trade to trade and from place to place can in some cases be so large and so rapid as to reduce within a very short compass the period which is required to enable the supply of labour to adjust itself to the demand. That general ability which is easily transferable from one trade to another, is every year rising in importance relatively to that manual skill and technical knowledge which are specialized to one branch of industry. And thus economic progress brings with it on the one hand a constantly increasing changefulness in the methods of industry, and therefore a constantly increasing difficulty in predicting the demand for labour of any kind a generation ahead; but on the other hand it brings also an increasing power of remedying such errors of adjustment as have been made.[1]

We pass to differences between causes that are most powerful in long and

§ 4. Let us now revert to the principle that the income derived from the appliances for the production of a commodity exerts a controlling influence in the long run over their own supply and price, and therefore over the supply and the price of the commodity itself; but that within short periods there is not time for the exercise of

[1] On the subject of this section compare Bk. IV. vi. 8; Mr. Charles Booth's *Life and Labour in London*; and Sir H. Ll. Smith's *Modern Changes in the Mobility of Labour.*

any considerable influence of this kind. And let us inquire how this principle needs to be modified when it is applied not to the material agents of production, which are only a means towards an end, and which may be the private property of the capitalist, but to human beings who are ends as well as means of production and who remain their own property. VI, v, 5.

in short periods.

To begin with we must notice that, since labour is slowly produced and slowly worn out, we must take the term "long period" more strictly, and regard it as generally implying a greater duration, when we are considering the relations of normal demand and supply for labour, than when we are considering them for ordinary commodities. There are many problems, the period of which is long enough to enable the supply of ordinary commodities, and even of most of the material appliances required for making them, to be adjusted to the demand; and long enough therefore to justify us in regarding the average prices of those commodities during the period as "normal," and as equal to their normal expenses of production in a fairly broad use of the term; while yet the period would not be long enough to allow the supply of labour to be adjusted at all well to the demand for it. The average earnings of labour during this period therefore would not be at all certain to give about a normal return to those who provided the labour; but they would rather have to be regarded as determined by the available stock of labour on the one hand, and the demand for it on the other. Let us consider this point more closely.

A "long period" with regard to the supply of labour must generally be very long.

§ 5. Market variations in the price of a commodity are governed by the temporary relations between demand and the stock that is in the market or within easy access of it. When the market price so determined is above its normal level, those who are able to bring new supplies into the market in time to take advantage of the high price receive an abnormally high reward; and if they are small handicraftsmen working on their own account, the whole of this rise in price goes to increase their earnings.

The independent handicraftsman.

In the modern industrial world, however, those who undertake the risks of production and to whom the benefits of any rise in price, and the evils of any fall, come in the first instance, are capitalist undertakers of industry. Their net receipts in excess of the immediate outlay involved for making the commodity, that is, its prime (money) cost, are a return derived for the time being from the capital invested in their business in various forms, including their own faculties and abilities. But, when trade is good, the force of competition among the employers themselves, each desiring to

Fluctuations of wages under the modern system of industry.

VI, v, 7. and human beings would earn generally an amount that corresponded fairly with their cost of rearing and training, conventional necessaries as well as those things which are strictly necessary being reckoned for. But conventional necessaries might change under the influence of non-economic causes, even while economic conditions themselves were stationary: and this change would affect the supply of labour, and would lessen the national dividend and slightly alter its distribution. As it is, the economic conditions of the country are constantly changing, and the point of adjustment of normal demand and supply in relation to labour is constantly being shifted.

The extra income earned by rare natural abilities may be regarded as a surplus when analysing the incomes of individuals;

§ 7. We may now discuss the question under what head to class those extra incomes which are earned by extraordinary natural abilities. Since they are not the result of the investment of human effort in an agent of production for the purpose of increasing its efficiency, there is a strong *primâ facie* cause for regarding them as a producer's surplus, resulting from the possession of a differential advantage for production, freely given by nature. This analogy is valid and useful so long as we are merely analysing the component parts of the income earned by an individual. And there is some interest in the inquiry how much of the income of successful men is due to chance, to opportunity, to the conjuncture, how much to the good start that they have had in life; how much is profits on the capital invested in their special training, how much is the reward of exceptionally hard work; and how much remains as a producer's surplus or rent resulting from the possession of rare natural gifts.

but not when we are considering the normal earnings of a trade;

But when we are considering the whole body of those engaged in any occupation, we are not at liberty to treat the exceptionally high earnings of successful men as rent, without making allowance for the low earnings of those who fail. For the supply of labour in any occupation is governed, other things being equal, by the earnings of which it holds out the prospect. The future of those who enter the occupation cannot be predicted with certainty: some, who start with the least promise, turn out to have great latent ability, and, aided perhaps by good luck, they earn large fortunes; while others, who made a brilliant promise at starting, come to nothing. For the chances of success and failure are to be taken together, much as are the chances of good and bad hauls by a fisherman or of good and bad harvests by a farmer; and a youth when selecting an occupation, or his parents when selecting one for him, are very far from leaving out of account the fortunes of successful men. These fortunes are therefore part of the price that is paid in the long run

for the supply of labour and ability that seeks the occupation: they enter into the true or "long period" normal supply price of labour in it. VI, v, 7.

save in the extreme case of a class of persons born with rare abilities specialized to particular branches of production.

It may be conceded, however, that, if a certain class of people were marked out from their birth as having special gifts for some particular occupation, and for no other, so that they would be sure to seek that occupation in any case, then the earnings which such men would get might be left out of account as exceptional, when we were considering the chances of success or failure for ordinary persons. But as a matter of fact that is not the case; for a great part of a person's success in any occupation depends on the development of talents and tastes, the strength of which cannot be clearly predicted until he has already committed himself to a choice of occupation. Such predictions are at least as fallible as those which a new settler can make as to the future fertility and advantages of situation of the various plots of land that are offered for his selection.[1] And partly for this reason the extra income derived from rare natural qualities bears a closer analogy to the surplus produce from the holding of a settler who has made an exceptionally lucky selection, than to the rent of land in an old country. But land and human beings differ in so many respects, that even that analogy, if pursued very far, is apt to mislead: and the greatest caution is required in the application of the term producer's surplus to the earnings of extraordinary ability.

Finally, it may be observed that the argument of V. VIII.—XI., with regard to the special earnings (whether of the nature of rents or quasi-rents) of appliances capable of being used in several branches of production, is applicable to the special earnings of natural abilities, and of skill. When land or machinery capable of being used for producing one commodity is used for another, the supply price of the first is raised, though not by an amount dependent on the incomes which those appliances for production would yield in the second use. So when trained skill or natural abilities which could have been applied to produce one commodity, are applied for another, the supply price of the first is raised through the narrowing of its sources of supply.

[1] Comp. V. x. 2.

CHAPTER VI

INTEREST OF CAPITAL

Chapters I. and II. discussed the main principles of the action of demand and supply in relation to capital; we go now to details.

§ 1. THE relations between demand and supply cannot be studied by themselves in the case of capital any more than they could in the case of labour. All the elements of the great central problem of distribution and exchange mutually govern one another: and the first two chapters of this Book, and more especially the parts that relate directly to capital, may be taken as an introduction to this and the next two chapters. But before entering on the detailed analysis with which they will be mainly occupied, something may be said as to the position which the modern study of capital and interest holds in relation to earlier work.

The fundamental doctrines of economics as to capital are not new, but are the basis of action in ordinary life.

The aid which economic science has given towards understanding the part played by capital in our industrial system is solid and substantial; but it has made no startling discoveries. Everything of importance which is now known to economists has long been acted upon by able business men, though they may not have been able to express their knowledge clearly, or even accurately.

Everyone is aware that no payment would be offered for the use of capital unless some gain were expected from that use; and further that these gains are of many kinds. Some borrow to meet a pressing need, real or imaginary, and pay others to sacrifice the present to the future in order that they themselves may sacrifice the future to the present. Some borrow to obtain machinery, and other "intermediate" goods, with which they may make things to be sold at a profit; some to obtain hotels, theatres and other things which yield their services directly, but are yet a source of profit to those who control them. Some borrow houses for themselves to live in, or else the means wherewith to buy or build their own houses; and the absorption of the resources of the country in such things as houses increases, other things being equal, with every increase in those resources and every consequent fall in the rate of interest, just as does the absorption of those resources in machinery, docks, etc. The demand for durable stone houses in place of wood houses which give nearly equal accommodation for the time indicates that a country is growing in wealth, and that capital is to be had at a

lower rate of interest; and it acts on the market for capital and on the rate of interest in the same way as would a demand for new factories or railways. VI, vi, 1.

Everyone knows that people will not lend gratis as a rule; because, even if they have not themselves some good to which to turn the capital or its equivalent, they are sure to be able to find others to whom its use would be of benefit, and who would pay for the loan of it: and they stand out for the best market.[1]

Everyone knows that few, even among the Anglo-Saxon and other steadfast and self-disciplined races, care to save a large part of their incomes; and that many openings have been made for the use of capital in recent times by the progress of discovery and the opening up of new countries: and thus everyone understands generally the causes which have kept the supply of accumulated wealth so small relatively to the demand for its use, that that use is on the balance a source of gain, and can therefore require a payment when loaned. Everyone is aware that the accumulation of wealth is held in check, and the rate of interest so far sustained, by the preference which the great mass of humanity have for present over deferred gratifications, or, in other words, by their unwillingness to "wait." And indeed the true work of economic analysis in this respect is, not to emphasize this familiar truth, but to point out how much more numerous are the exceptions to this general preference than would appear at first sight.[2]

But economics has important and difficult work to do in connecting individual truths to make an organic whole;

These truths are familiar; and they are the basis of the theory of capital and interest. But in the affairs of ordinary life truths are apt to present themselves in fragments. Particular relations are seen clearly one at a time; but the interactions of mutually self-determining causes are seldom grouped as a whole. The chief task of economics then as regards capital is to set out in order and in their mutual relations, all the forces which operate in the production and accumulation of wealth and the distribution of income; so that as regards both capital and other agents of production they may be seen *mutually governing* one another.

[1] That the supply of capital is held back by the *prospectiveness* of its uses, and men's unreadiness to look forward, while the demand for it comes from its *productiveness*, in the broadest sense of the term, is indicated in II. iv.

[2] See Book III. v. 3, 4; and IV. vii. 8. It is a good corrective of this error to note how small a modification of the conditions of our own world would be required to bring us to another in which the mass of the people would be so anxious to provide for old age and for their families after them, and in which the new openings for the advantageous use of accumulated wealth in any form were so small, that the amount of wealth for the safe custody of which people were willing to pay would exceed that which others desired to borrow; and where in consequence even those who saw their way to make a gain out of the use of capital, would be able to exact a payment for taking charge of it; and interest would be negative all along the line.

VI, vi, 1.

and in analysis,

Next it has to analyse the influences which sway men in their choice between present and deferred gratifications, including leisure and opportunities for forms of activity that are their own reward. But here the post of honour lies with mental science; the received doctrines of which economics applies, in combination with other material, to its special problems.[1]

especially of the constituents of profits and their mutual relations.

Its work is therefore heavier in that analysis, on which we are to be engaged in this and the next two chapters, of the gains that are derived from the aid of accumulated wealth in the attainment of desirable ends, especially when that wealth takes the form of trade capital. For these gains or profits contain many elements, some of which belong to interest for the use of capital in a broad sense of the term; while others constitute *net* interest, or interest properly so called. Some constitute the reward of managing ability and of enterprise, including the bearing of risks; and others again belong not so much to any one of these agents of production as to their combination.

The economic doctrine of capital has progressed continuously and without abrupt change.

The scientific doctrine of capital has had a long history of continuous growth and improvement in these three directions during the last three centuries. Adam Smith appears to have seen indistinctly, and Ricardo to have seen distinctly, almost everything of primary importance in the theory, very much as it is known now: and though one writer has preferred to emphasize one of its many sides, and another another, there seems no good reason for believing that any great economist since the time of Adam Smith has ever completely overlooked any side; and especially is it certain that nothing which would be familiar to men of business was overlooked by the practical financial genius of Ricardo. But there has been progress; almost everyone has improved some part, and given it a sharper and clearer outline; or else has helped to explain the complex relations of its different parts. Scarcely anything done by any great thinker has had to be undone, but something new has constantly been added.[2]

[1] Compare III. v. and IV. vii.

[2] Prof. v. Böhm-Bawerk appears to have underrated the acumen of his predecessors in their writings on capital and interest. What he regards as mere naïve fragments of theories appear rather to be the utterances of men well acquainted with the practical workings of business; and who, partly for some special purpose, and partly through want of system in exposition, gave such disproportionate stress to some elements of the problem as to throw others into the background. Perhaps part of the air of paradox with which he invests his own theory of capital may be the result of a similar disproportionate emphasis, and an unwillingness to recognize that the various elements of the problem *mutually* govern one another. Attention has already been called to the fact that, though he excludes houses and hotels, and indeed everything that is not strictly speaking an intermediate good, from his definition of capital, yet the demand for the use of goods, that are not intermediate, acts as directly on the rate of interest, as does that for capital as defined by him. Connected with this use

§ 2. But if we go back to mediæval and ancient history we certainly do seem to find an absence of clear ideas as to the nature of the services which capital renders in production, and for which interest is the payment; and since this early history is exercising an indirect influence on the problems of our own age, something should be said of it here. VI, VI, 2.

In early stages of civilization the abuses of loans at interest often exceed their uses;

In primitive communities there were but few openings for the employment of fresh capital in enterprise, and anyone who had property that he did not need for his own immediate use, would seldom forego much by lending it on good security to others without charging any interest for the loan. Those who borrowed were generally the poor and the weak, people whose needs were urgent and whose powers of bargaining were very small. Those who lent were as a rule either people who spared freely of their superfluity to help their distressed neighbours, or else professional money-lenders. To these last the poor man had resort in his need; and they frequently made a cruel use of their power, entangling him in meshes from which he could not escape without great suffering, and perhaps the loss of the personal freedom of himself or his children. Not only uneducated people, but the sages of early times, the fathers of the mediæval church, and the English rulers of India in our own time, have been inclined to say, that money-lenders "traffic in other people's misfortunes, seeking gain through their adversity: under the pretence of compassion they dig a pit for the oppressed."[1] In such a state of society it may be a question for discussion, whether it is to the public advantage that people should be encouraged to borrow wealth under a contract to return it with increase after a time: whether such contracts, taken one with another, do not on

of the term capital is a doctrine on which he lays great stress, viz. that "methods of production which take time are more productive" (*Positive Capital*, Book V. ch. IV. p. 261), or again that "every lengthening of a roundabout process is accompanied by a further increase in the technical result" (*Ib.* Book II. ch. II. p. 84). There are however innumerable processes which take a long time and are roundabout; but are not productive and therefore are not used; and in fact he seems to have inverted cause and effect. The true doctrine appears to be that, because interest has to be paid for, and can be gained by the use of capital; therefore those long and roundabout methods, which involve much locking up of capital, are avoided unless they are more productive than others. The fact that many roundabout methods are in various degrees productive is one of the causes that affect the rate of interest; and the rate of interest and the extent to which roundabout methods are employed are two of the elements of the central problem of distribution and exchange that mutually determine one another. See Appendix I, 3.

[1] From St. Chrysostom's Fifth Homily, see above I. II. 8. Compare also Ashley's *Economic History*, VI. VI.; and Bentham *On Usury*. The sentiment against usury had its origin in tribal relationships, in many other cases besides that of the Israelites, perhaps in all cases; and, as Cliffe Leslie remarks (*Essays*, 2nd Edition, p. 244):—It was "inherited from prehistoric times, when the members of each community still regarded themselves as kinsmen; when communism in property existed at least in practice, and no one who had more than he needed could refuse to share his superfluous wealth with a fellow-tribesman in want."

VI, vi, 3. the whole diminish rather than increase the sum total of human happiness.

and this fact retarded the growth of clear notions as to the nature of the services rendered by capital.

But unfortunately attempts were made to solve this difficult and important practical question by a philosophical distinction between the interest for the loan of money and the rental of material wealth. Aristotle had said that money was barren, and that to derive interest from lending it out was to put it to an unnatural use. And following his lead Scholastic writers argued with much labour and ingenuity that he who lent out a house or a horse might charge for its use, because he gave up the enjoyment of a thing that was directly productive of benefit. But they found no similar excuse for the interest on money: that, they said, was wrong, because it was a charge for a service which did not cost the lender anything.[1]

Mediæval confusion of thought on this subject.

If the loan really cost him nothing, if he could have made no use of the money himself, if he was rich and the borrower poor and needy, then it might no doubt be argued that he was morally bound to lend his money gratis: but on the same grounds he would have been bound to lend without charge to a poor neighbour a house which he would not himself inhabit, or a horse for a day's work of which he had himself no need. The doctrine of these writers therefore really implied, and in fact it did convey to people's minds the mischievous fallacy that—independently of the special circumstances of the borrower and the lender—the loan of money, *i.e.* of command over things in general, is not a sacrifice on the part of the lender and a benefit to the borrower, of the same kind as the loan of a particular commodity: they obscured the fact that he who borrows money can buy, for instance, a young horse, whose services he can use, and which he can sell, when the loan has to be returned, at as good a price as he paid for him. The lender gives up the power of doing this, the borrower acquires it: there is no substantial difference between the loan of the purchase price of a horse and the loan of a horse.[2]

In the modern world similar

§ 3. History has in part repeated itself: and in the modern Western World a new reforming impulse has derived strength from, and given strength to, another erroneous analysis of the nature of

[1] They also make a distinction between *hiring* things which were themselves to be returned, and *borrowing* things the equivalent of which only had to be returned. This distinction, however, though interesting from an analytical point of view, has very little practical importance.

[2] Archdeacon Cunningham has described well the subtleties by which the mediæval church explained away her prohibition of loans at interest, in most of those cases in which the prohibition would have been seriously injurious to the body politic. These subtleties resemble the legal fictions by which the judges have gradually explained away the wording of laws, the natural interpretation of which seemed likely to be mischievous. In both cases some practical evil has been avoided at the expense of fostering habits of confused and insincere thought.

interest. As civilization has progressed, the loans of wealth to needy people have become steadily more rare, and a less important part of the whole; while the loans of capital for productive use in business have grown at an ever-increasing rate. An in consequence, though the borrowers are not now regarded as the subjects of oppression, a grievance has been found in the fact that all producers, whether working with borrowed capital or not, reckon interest on the capital used by them as among the expenses which they require to have returned to them in the long run in the price of their wares as a condition of their continuing business. On this account, and on account of the openings which the present industrial system offers of amassing great wealth by sustained good fortune in speculation, it has been argued that the payment of interest in modern times oppresses the working classes indirectly, though not directly; and that it deprives them of their fair share of the benefits resulting from the growth of knowledge. And hence is derived the practical conclusion that it would be for the general happiness and therefore right, that no private person should be allowed to own any of the means of production, nor any direct means of enjoyment, save such as he needs for his own use.

VI, vi, 3.

causes have promoted the spread of erroneous analysis.

This practical conclusion has been supported by other arguments which will claim our attention; but at present we are only concerned with the doctrine that has been used by William Thompson, Rodbertus, Karl Marx, and others in support of it. They argued that labour always produces a "Surplus"[1] above its wages and the wear-and-tear of capital used in aiding it: and that the wrong done to labour lies in the exploitation of this surplus by others. But this assumption that the whole of this Surplus is the produce of labour, already takes for granted what they ultimately profess to prove by it; they make no attempt to prove it; and it is not true. It is not true that the spinning of yarn in a factory, after allowance has been made for the wear-and-tear of the machinery, is the product of the labour of the operatives. It is the product of their labour, together with that of the employer and subordinate managers, and of the capital employed; and that capital itself is the product of labour and waiting: and therefore the spinning is the product of labour of many kinds, and of waiting. If we admit that it is the product of labour alone, and not of labour and waiting, we can no doubt be compelled by inexorable logic to admit that there is no justification for Interest, the reward of waiting; for the conclusion is implied in the premiss. Rodbertus and Marx do indeed boldly

Connection between the practical proposals of Rodbertus and Karl Marx and their doctrine of value. Their main conclusion was assumed in an untrue premiss.

[1] This is Marx's phrase. Rodbertus had called it a "Plus."

VI, vi, 4. claim the authority of Ricardo for their premiss; but it is really as opposed to his explicit statement and the general tenor of his theory of value, as it is to common sense.[1]

To put the same thing in other words; if it be true that the postponement of gratifications involves *in general* a sacrifice on the part of him who postpones, just as additional effort does on the part of him who labours; and if it be true that this postponement enables man to use methods of production of which the first cost is great; but by which the aggregate of enjoyment is increased, as certainly as it would be by an increase of labour; then it cannot be true that the value of a thing depends simply on the amount of labour spent on it. Every attempt to establish this premiss has necessarily assumed implicitly that the service performed by capital is a "free" good, rendered without sacrifice, and therefore needing no interest as a reward to induce its continuance; and this is the very conclusion which the premiss is wanted to prove. The strength of Rodbertus' and Marx's sympathies with suffering must always claim our respect: but what they regarded as the scientific foundation of their practical proposals appears to be little more than a series of arguments in a circle to the effect that there is no economic justification for interest, while that result has been all along latent in their premisses; though, in the case of Marx, it was shrouded by mysterious Hegelian phrases, with which he "coquetted," as he tells us in his Preface.

Net and *Gross* interest.

§ **4.** We may now proceed with our analysis. The interest of which we speak when we say that interest is the earnings of capital simply, or the reward of waiting simply, is *Net* interest; but what commonly passes by the name of Interest, includes other elements besides this, and may be called *Gross* interest.

Gross interest includes some Insurance against risk,

These additional elements are the more important, the lower and more rudimentary the state of commercial security and of the organization of credit. Thus, for instance, in mediæval times, when a prince wanted to forestall some of his future revenues, he borrowed perhaps a thousand ounces of silver, and undertook to pay back fifteen hundred at the end of a year. There was however no perfect security that he would fulfil the promise; and perhaps the lender would have been willing to exchange that promise for an absolute certainty of receiving thirteen hundred at the end of the year. In that case, while the nominal rate at which the loan was made was fifty per cent., the real rate was thirty.

The necessity for making this allowance for insurance against

[1] See Appendix I, 2.

risk is so obvious, that it is not often overlooked. But it is less obvious that every loan causes some trouble to the lender; that when, from the nature of the case, the loan involves considerable risk, a great deal of trouble has often to be taken to keep these risks as small as possible; and that then a great part of what appears to the borrower as interest, is, from the point of view of the lender, earnings of management of a troublesome business.

and also Earnings of Management,

At the present time the net interest on capital in England is a little under three per cent. per annum; for no more than that can be obtained by investing in such first-rate stock-exchange securities as yield to the owner a secure income without appreciable trouble or expense on his part. And when we find capable business men borrowing on perfectly secure mortgages, at (say) four per cent., we may regard that gross interest of four per cent. as consisting of net interest, or interest proper, to the extent of a little under three per cent., and of earnings of management by the lenders to the extent of rather more than one per cent.[1]

and therefore varies with the circumstances of each loan.

Again, a pawnbroker's business involves next to no risk; but his loans are generally made at the rate of 25 per cent. per annum, or more; the greater part of which is really earnings of management of a troublesome business. Or to take a more extreme case, there are men in London, and Paris, and probably elsewhere, who make a living by lending money to costermongers. The money is often lent at the beginning of the day for the purchase of fruit, etc., and returned at the end of the day, when the sales are over, at a profit of ten per cent.: there is a little risk in the trade, and the money is seldom lost.[2] Now a farthing invested at ten per cent. a day would amount to a billion pounds at the end of a year. But no one can become rich by lending to costermongers; because no one can lend much in this way. The so-called interest on the loans really consists almost entirely of earnings of a kind of work for which few capitalists have a taste.

Cases in which gross interest is very high.

[1] Mortgages for long periods are sometimes more sought after by lenders than those for short periods, and sometimes less. The former save the trouble of frequent renewal, but they deprive the lender of command over his money for a long time, and thus limit his freedom. First-class stock-exchange securities combine the advantages of very long and very short mortgages. For their holder can hold them as long as he likes, and can convert them into money when he will; though, if at the time credit is shaken and other people want ready money, he will have to sell at a loss. If they could always be realized without a loss, and if there were no broker's commissions to be paid on buying and selling, they would not yield a higher income than money lent "on call" at the lender's choice of time; and that will always be less than the interest on loans for any fixed period, short or long.

[2] Again, Dr. Jessop (*Arcady*, p. 114) tells us "there are hosts of small money-lenders in the purlieus of the cattle markets who make advances to speculators *with an eye*," lending sums, amounting in exceptional cases up to £200, at a gross interest of ten per cent. for the twenty-four hours.

VI, vi, 5.

Further analysis of gross interest.

§ 5. It is then necessary to analyse a little more carefully the extra risks which are introduced into business when much of the capital used in it has been borrowed. Let us suppose that two men are carrying on similar businesses, the one working with his own, the other chiefly with borrowed capital.

Trade risks.

There is one set of risks which is common to both; which may be described as the *trade risks* of the particular business in which they are engaged. They arise from fluctuations in the markets for their raw materials and finished goods, from unforeseen changes of fashion, from new inventions, from the incursion of new and powerful rivals into their respective neighbourhoods, and so on. But there is another set of risks, the burden of which has to be borne by the man working with borrowed capital, and not by the other; and we may call them *personal risks*. For he who lends capital to be used by another for trade purposes, has to charge a high interest as insurance against the chances of some flaw or deficiency in the borrower's personal character or ability.[1]

Personal risks.

Analysis of personal risks.

The borrower may be less able than he appears, less energetic, or less honest. He has not the same inducements, as a man working with his own capital has, to look failure straight in the face, and withdraw from a speculative enterprise as soon as it shows signs of going against him. On the contrary, should his standard of honour not be high, he may be not very keen of sight as to his losses. For if he withdraws at once, he will have lost all he has of his own; and if he allows the speculation to run on, any additional loss will fall on his creditors; and any gain will come to himself. Many creditors lose through semi-fraudulent inertness of this kind on the part of their debtors, and a few lose through deliberate fraud: the debtor for instance may conceal in subtle ways the property that is really his creditors', until his bankruptcy is over, and he has entered on a new business career; he can bring gradually into play his secret reserve funds without exciting over-much suspicion.

Gross interest does not tend to equality

The price then that the borrower has to pay for the loan of capital, and which he regards as interest, is from the point of view of the lender more properly to be regarded as profits: for it includes insurance against risks which are often very heavy, and earnings of management for the task, which is often very arduous, of keeping those risks as small as possible. Variations in the nature of these risks and of the task of management will of course occasion corresponding variations in the gross interest, so called, that is paid for the use of money. The tendency of competition is therefore not

[1] See also below, ch. VIII. § 2.

towards equalizing this gross interest: on the contrary, the more thoroughly lenders and borrowers understand their business, the more certainly will some classes of borrowers obtain loans at a lower rate than others.

but net interest does.

We must defer to a later stage our study of the marvellously efficient organization of the modern money market by which capital is transferred from one place where it is superabundant to another where it is wanted; or from one trade that is in the process of contraction to another which is being expanded: and at present we must be contented to take it for granted that a very small difference between the rates of net interest to be got on the loan of capital in two different modes of investment in the same Western country will cause capital to flow, though perhaps by indirect channels, from the one to the other.

It is true that if either of the investments is on a small scale, and few people know much about it, the flow of capital may be slow. One person, for instance, may be paying five per cent. on a small mortgage, while his neighbour is paying four per cent. on a mortgage which offers no better security. But in large affairs the rate of net interest (so far as it can be disentangled from the other elements of profits) is nearly the same all over England. And further the divergencies between the average rates of net interest in different countries of the Western World are rapidly diminishing, as a result of the general growth of intercourse, and especially of the fact that the leading capitalists of all these countries hold large quantities of stock-exchange securities, which yield the same revenue and are sold practically at the same price on the same day all over the world.

When we come to discuss the Money Market we shall have to study the causes which render the supply of capital for immediate use much larger at some times than at others; and which at certain times make bankers and others contented with an extremely low rate of interest, provided the security be good and they can get their money back into their own hands quickly in case of need. At such times they are willing to lend for short periods even to borrowers, whose security is not of the first order, at a rate of interest that is not very high. For their risks of loss are much reduced by their power of refusing to renew the loan, if they notice any indication of weakness on the part of the borrower; and since short loans on good security are fetching only a nominal price, nearly the whole of what interest they get from him is insurance against risk, and remuneration of their own trouble. But on the other hand such

VI, vi, 6. loans are not really very cheap to the borrower: they surround him by risks, to avoid which he would often be willing to pay a much higher rate of interest. For if any misfortune should injure his credit, or if a disturbance of the money market should cause a temporary scarcity of loanable capital, he may be quickly brought into great straits. Loans to traders at nominally low rates of interest, if for short periods only, do not therefore really form exceptions to the general rule just discussed.

The rate of interest applies strictly to new investments only: the value of old investments is governed by their earnings.

§ 6. The flow of investment of resources from their common source in production consists of two streams. The smaller consists of new additions to the accumulated stock. The larger merely replaces that which is destroyed; whether by immediate consumption, as in the case of food, fuel, etc.; by wear-and-tear, as in that of railway irons; by the lapse of time, as in that of a thatched roof or a trade directory; or by all these combined. The annual flow of this second stream is probably not less than a quarter of the total stock of capital, even in a country in which the prevailing forms of capital are as durable as in England. It is therefore not unreasonable to assume for the present that the owners of capital in general have been able in the main to adapt its forms to the normal conditions of the time, so as to derive as good a *net* income from their investments in one way as another.

It is only on this supposition that we are at liberty to speak of capital in general as being accumulated under the expectation of a certain net interest which is the same for all its forms. For it cannot be repeated too often that the phrase "the rate of interest" is applicable to old investments of capital only in a very limited sense. For instance, we may perhaps estimate that a trade capital of some seven thousand millions is invested in the different trades of this country at about three per cent. net interest. But such a method of speaking, though convenient and justifiable for many purposes, is not accurate. What ought to be said is that, taking the rate of net interest on the investments of new capital in each of those trades [*i.e.* on marginal investments] to be about three per cent.; then the aggregate net income rendered by the whole of the trade-capital invested in the various trades is such that, if capitalized at 33 years' purchase (that is on the basis of interest at three per cent.), it would amount to some seven thousand million pounds. For the value of the capital already invested in improving land or erecting a building; in making a railway or a machine is the aggregate discounted value of its estimated future net incomes [or quasi-rents]; and if its prospective income-yielding power should

diminish, its value would fall accordingly and would be the capitalized value of that smaller income after allowing for depreciation. VI, vi, .7

Estimates of true, as contrasted with nominal, interest rest on assumptions as to the future purchasing power of money.

§ 7. Throughout the present volume we are supposing, in the absence of any special statement to the contrary, that all values are expressed in terms of money of fixed purchasing power, just as astronomers have taught us to determine the beginning or the ending of the day with reference not to the actual sun but to a *mean sun* which is supposed to move uniformly through the heavens. Further, the influences which changes in the purchasing power of money do exert on the terms on which loans are arranged, are most conspicuous in the market for short loans—a market which differs in many of its incidents from any other, and a full discussion of their influences must be deferred. But they should be noticed here in passing, at all events as a point of abstract theory. For the rate of interest which the borrower is willing to pay measures the benefits that he expects to derive from the use of the capital only on the assumption that the money has the same purchasing power when it is borrowed and when it is returned.

For short periods this may be best measured in commodities. A rise in the value of money makes the true rate of interest higher than the nominal.

Let us suppose, for instance, that a man borrows £100 under contract to pay back £105 at the end of the year. If meanwhile the purchasing power of money has risen 10 per cent. (or which is the same thing, general prices have fallen in the ratio of 10 to 11), he cannot get the £105 which he has to pay back without selling one-tenth more commodities than would have been sufficient for the purpose at the beginning of the year. Assuming, that is, that the things which he handles have not changed in value relatively to things in general, he must sell at the end of the year commodities which would have cost him £115 10*s*. at the beginning, in order to pay back with interest his loan of £100; and therefore he has lost ground unless the commodities have increased under his hands 15½ per cent. While nominally paying 5 per cent. for the use of his money, he has really been paying 15½ per cent.

On the other hand, if prices had risen so much that the purchasing power of money had fallen 10 per cent. during the year, and he could get £100 for things which cost him £90 at the beginning of the year; then, instead of paying 5 per cent. for the loan, he would really be paid 5½ per cent. for taking charge of the money.[1]

When we come to discuss the causes of alternating periods of inflation and depression of commercial activity, we shall find that they are intimately connected with those variations in the real rate

[1] Compare Fisher's *Appreciation and Interest* 1896: and *The rate of interest* 1907, especially Chapters V, XIV and their respective Appendices.

VI, vi, 7. of interest which are caused by changes in the purchasing power of money. For when prices are likely to rise, people rush to borrow money and buy goods, and thus help prices to rise; business is inflated, and is managed recklessly and wastefully; those working on borrowed capital pay back less real value than they borrowed, and enrich themselves at the expense of the community. When afterwards credit is shaken and prices begin to fall, everyone wants to get rid of commodities and get hold of money which is rapidly rising in value; this makes prices fall all the faster, and the further fall makes credit shrink even more, and thus for a long time prices fall because prices have fallen.

We shall find that fluctuations in prices are caused only to a very slight extent by fluctuations in the supply of the precious metals; and that they would not be much diminished by the adoption of gold and silver instead of gold as the basis of our currency. But the evils which they cause are so great, that it is worth while to do much in order to diminish them a little. These evils however are not necessarily inherent in those slow changes in the purchasing power of money, which follow the course of man's changing command over nature: and in such changes there is generally both loss and gain. In the fifty years preceding the great war, improvements in the arts of production and in the access to rich sources of supply of raw material doubled the efficiency of man's labour in procuring many of the things which he wants. An injury would have been done to those members of the working classes (now indeed rapidly diminishing in number) whose money wages are much influenced by custom; if the purchasing power of a sovereign in terms of commodities had remained stationary, instead of following, as it has, the increasing command by man over nature. But this matter will require full discussion in another place.

CHAPTER VII

PROFITS OF CAPITAL AND BUSINESS POWER

This chapter and the following continue the analyses of IV. XII., XIII.

§ 1. In the concluding chapters of Book IV we made some study of the various forms of business management, and the faculties required for them; and we saw how the supply of business power in command of capital may be regarded as consisting of three elements, the supply of capital, the supply of the business power to manage it, and the supply of the organization by which the two are brought together and made effective for production. In the last chapter we were concerned mainly with interest, the earnings of the first of these elements. In the earlier part of this chapter we shall be occupied with the earnings of the second and third taken together, which we have called *gross* earnings of management; and afterwards we shall pass to the relation in which this stands to the earnings of the second taken by itself which we have called *net* earnings of management.[1] We have to inquire more closely into the nature of the services which are rendered to society by those who undertake and manage business enterprises, and the rewards of their work; and we shall find that the causes by which these are governed are less arbitrary, and present closer analogies to those which govern other kinds of earnings, than is commonly supposed.

The success of any form of business management depends on its immediate rather than its ultimate efficiency.

We must however make a distinction at starting. We must call to mind [2] the fact that the struggle for survival tends to make those methods of organization prevail, which are best fitted to *thrive in* their environment; but not necessarily those best fitted to *benefit* their environment, unless it happens that they are duly rewarded for all the benefits which they confer, whether direct or indirect. And in fact this is not so. For as a general rule the law of substitution—which is nothing more than a special and limited application of the law of survival of the fittest—tends to make one method of industrial organization supplant another when it offers a direct and immediate service at a lower price. The indirect and ultimate services which either will render have, as a general rule, little or no weight in the balance; and as a result many businesses languish and die, which might in the long run have done good work for society

[1] See p. 261.

[2] See IV. VIII.

VI, VII, 1. if only they could have obtained a fair start. This is especially true of some forms of co-operative associations.

In this connection we may divide employers and other undertakers into two classes, those who open out new and improved methods of business, and those who follow beaten tracks. The services which the latter perform for society are chiefly direct and seldom miss their full reward: but it is otherwise with the former class.

For instance, economies have lately been introduced into some branches of iron manufacture by diminishing the number of times which the metal is heated in passing from iron ore to its final form; and some of these new inventions have been of such a nature that they could neither be patented nor kept secret. Let us suppose then that a manufacturer with a capital of £50,000 is getting in normal times a net profit of £4,000 a year, £1,500 of which we may regard as his earnings of management, leaving £2,500 for the other two elements of profits. We assume that he has been working so far in the same way as his neighbours, and showing an amount of ability which, though great, is no more than the normal or average ability of the people who fill such exceptionally difficult posts; that is, we assume that £1,500 a year is the normal earnings for the kind of work he has been doing. But as time goes on, he thinks out a way of dispensing with one of the heatings that have hitherto been customary; and in consequence, without increasing his expenses, he is able to increase his annual output by things which can be sold for £2,000 net. So long, therefore, as he can sell his wares at the old price, his earnings of management will be £2,000 a year above the average; and he will earn the full reward of his services to society. His neighbours however will copy his plan, and probably make more than average profits for a time. But soon competition will increase the supply, and lower the price of their wares, until their profits fall to about their old level; for no one could get extra high wages for making eggs stand on their ends after Columbus's plan had become public property.

Many business men whose inventions have in the long run been of almost priceless value to the world, have earned even less by their discoveries than Milton by his *Paradise Lost* or Millet by his *Angelus*; and while many men have amassed great wealth by good fortune, rather than by exceptional ability in the performance of public services of high importance, it is probable that those business men who have pioneered new paths have often conferred on society benefits out of all proportion to their own gains, even though they

have died millionaires. Although then we shall find that the rewards of every business undertaker tend to be proportionate to the *direct* services he renders to the community, this will by itself go but a small way towards proving that the existing industrial organization of society is the best conceivable, or even the best attainable; and it must not be forgotten that the scope of our present inquiry is limited to a study of the action of causes that determine the earnings of business undertaking and management *under existing social institutions.*

We will begin by tracing the adjustment of the rewards of the services rendered to society by ordinary workmen, by foremen, and by employers of different grades: we shall find the principle of substitution everywhere at work.

Adjustment of demand for the services of foremen as compared with those of ordinary workmen.

§ 2. We have already noticed that a great part of the work done by the head of a small business himself, is relegated in a large business to salaried heads of departments, managers, foremen and others. And this thread will guide us to much that is useful for our present inquiry. The simplest case is that of the earnings of the ordinary foreman; with which we may begin.

Let us suppose, for instance, that a railway contractor or a dockyard manager finds that it answers best to have one foreman to every twenty labourers, the wages of a foreman being twice those of a labourer. This means that, if he found himself with 500 labourers and 24 foremen, he would expect to get just a little more work done at the same expense by adding one more foreman, than by adding two more ordinary labourers: while if he had had 490 labourers and 25 foremen, he would have found it better to add two more labourers. If he could have got his foreman for one and a half times the wages of a labourer, perhaps he would have employed one foreman to every fifteen labourers. But, as it is, the number of foremen employed is determined at one-twentieth of that of the labourers, and their demand price at twice the labourers' wages.[1]

In exceptional cases the foremen may earn their wages by overdriving those whose work they superintend. But we may now suppose them to contribute to the success of the undertaking in a legitimate way, by securing a better organization of its details; so that fewer things are done amiss and need to be undone; so that everyone finds the help that he wants in moving heavy weights, etc., ready for him just when he wants it; so that all machinery and implements are kept in good working order, and no one has to waste his time and strength by working with inadequate appliances, and

[1] With this argument may be compared that of VI. I. 7.

VI, VII, 3. so on. The wages of foremen who do work of this kind may be taken as typical of a great part of the earnings of management: society, acting through the individual employer, offers an effective demand for their services until that margin is reached at which the aggregate efficiency of industry would be increased by adding workers of some other trade more than by adding the foremen whose wages would add an equal amount to the expenses of production.

So far the employer has been regarded as the agent through whom competition acts in contriving and arranging the factors of production so that the maximum of direct services (estimated by their money measure) should be performed at a minimum money cost. But now we have to look at the work of the employers themselves being contrived and arranged for them, though of course in a more haphazard fashion, by the immediate action of their own competition.

Adjustment of demand for organizing ability. Illustration from the gradual rise of a working carpenter.

§ 3. Let us then look next at the way in which the work of foremen and salaried managers is constantly being weighed against that of the heads of businesses. It will be interesting to watch the course of a small business as it gradually expands. A house carpenter, for instance, steadily increases his stock of tools, till he can hire a small workshop, and undertake odd jobs for private persons, who have to agree with him as to what is to be done. The work of management and of undertaking what little risks there are, is shared between them and him; and, as this gives them a great deal of trouble, they are not willing to pay him at a high rate for what work of management he does.[1]

His work as a small master-builder.

So his next step is to undertake all the different sides of small repairs. He has now entered on the career of a master-builder; and if his business grows, he gradually withdraws himself from manual labour, and to some extent even from the superintendence of its details. Substituting for his own work that of hired men, he has now to deduct their wages from his receipts, before he can begin to reckon his profits: and unless he proves himself to have a business ability up to the normal level of that grade of industry which he has now entered, he will probably soon lose all the little capital which he has gained, and after a short struggle return to that humbler rank of life in which he has prospered. Should his ability he just about that level, he will, with average good fortune, retain his position and perhaps gain a little ground: and the excess of his receipts over his outgoings will be representative of the normal earnings of management in his grade.

[1] Comp. IV. XII. 3.

VI, VII, 4.

Changes in the character of his work as the scale of his business increases.

If his ability be greater than that which is normal in his grade, he will be able to obtain as good a result with a given outlay for wages and other expenses, as most of his rivals can with a larger outlay: he will have substituted his extra ability in organization for some of their outlay; and his earnings of management will include the value of that outlay with which he has dispensed. He will thus increase his capital and his credit: and be able to borrow more, and at a lower rate of interest. He will obtain a wider business acquaintanceship and connection; and he will get an increased knowledge of materials and processes, and opportunities for bold but wise and profitable adventure; until at last he has delegated to others nearly all those duties which occupied his whole time even after he had ceased to do manual work himself.[1]

The adjustment between the earnings of business men on a large and on a small scale.

§ 4. Having watched the adjustment of the earnings of foremen and of ordinary workmen, and again of employers and foremen, we may now look at the earnings of employers on a small and a large scale.

Our carpenter having become a master-builder on a very large scale, his undertakings will be so many and so great as to have occupied the time and energies of some scores of employers who superintended all the details of their several businesses. Throughout this struggle between large businesses and small, we see the principle of substitution constantly in operation; the large employer substituting a little of his own work and a good deal of that of salaried managers and foremen for that of a small employer. When, for instance, tenders are invited for erecting a building, a builder with a large capital often finds it worth his while to enter the lists, even though he lives at a distance. The local builders secure great economies in having workshops and men whom they can trust already near the spot; while he gains something through buying his materials on a large scale, through his command of

[1] The employer of a large number of workmen has to economize his energies on the same plan that is followed by the leading officers of a modern army. For as Mr. Wilkinson says (*The Brain of an Army*, pp. 42–6):—"Organization implies that every man's work is defined, that he knows exactly what he must answer for, and that his authority is coextensive with his responsibility. . . . [In the German army] every commander above the rank of captain deals with a body composed of units, with the interior affairs of none of which he meddles, except in the case of failure on the part of the officer directly responsible. . . . The general commanding an army corps has to deal directly with only a few subordinates. . . . He inspects and tests the condition of all the various units, but . . . he is as far as possible unhampered by the worry of detail. He can make up his mind coolly." Bagehot in characteristic fashion had remarked (*Lombard Street*, ch. VIII.) that if the head of a large business "is very busy, it is a sign of something wrong"; and had compared (Essay on the *Transferability of Capital*) the primitive employer with a Hector or Achilles mingling in the fray, and the typical modern employer with "a man at the far end of a telegraph wire—a Count Moltke with his head over some papers—who sees that the proper persons are slain, and who secures the victory."

VI, VII. 5. machinery, especially for woodwork, and perhaps through being able to borrow what capital he wants on easier terms. These two sets of advantages frequently about balance one another; and the contest for the field of employment often turns on the relative efficiencies of the undivided energies of the small builder, and of that slight supervision which is all that the abler but busier large builder can afford to give himself, though he supplements it by the work of his local manager and of the clerks in his central office.[1]

A business man working with borrowed capital is at a disadvantage in some trades.

§ 5. So far we have been considering the gross earnings of management of a man who applies his own capital in business, and therefore can himself reap the equivalent of the costs direct and indirect, which are entailed when command over capital has to be collected from owners, who do not care to apply it to business uses themselves, and to be transferred to those whose own capital is insufficient for their enterprises.

We are next to consider the struggle for survival in pushing forward in some trades business men working chiefly with their own capital and in others those who work chiefly with borrowed capital. The personal risks, against which the lender of capital to be used in business requires to be indemnified, vary to some extent with the nature of that business, as well as with the circumstances of the individual borrower. They are very high in some cases, as for instance when a man is starting in a new branch of the electrical trades, in which there is very little past experience to go by, and the lender cannot easily form any independent judgment as to the progress which is being made by the borrower; and in all such cases the man working with borrowed capital is at a great disadvantage; the rate of profit is determined chiefly by the competition of those who apply their own capital. It may happen that not many such men have access to the trade; and in that case the competition may not be keen, and the rate of profit may be high; that is, it may exceed considerably net interest on the capital together with earnings of management on a scale commensurate with the difficulty of the business done, though that difficulty will probably be above the average.

And again, the new man with but little capital of his own is at a disadvantage in trades which move slowly and in which it is necessary to sow a long time before one reaps.

But in others he plays a leading part;

But in all those industries in which bold and tireless enterprise can reap a quick harvest; and in particular wherever high profits are to be made for a time by cheaper reproductions of costly wares,

[1] Comp. IV. XI. 4.

there the new man is in his element: it is he who by his quick resolutions and dexterous contrivances, and perhaps also a little by his natural recklessness, "forces the pace."

for he will work hard for a small reward.

And he often holds his own with great tenacity even under considerable disadvantages; for the freedom and dignity of his position are very attractive to him. Thus the peasant proprietor whose little plot is heavily mortgaged, the small so-called "sweater" or "garret master" who takes out a sub-contract at a low price, will often work harder than the ordinary workman, and for a lower net income. And the manufacturer who is doing a large business with comparatively little capital of his own will reckon his labour and anxiety almost as nothing, for he knows that he must anyhow work for his living, and he is unwilling to go into service to another: he will therefore work feverishly for a gain that would not count much in the balance with a wealthier rival, who, being able to retire and live in comfort on the interest of his capital, may be doubting whether it is worth while to endure any longer the wear-and-tear of business life.

The inflation of prices which culminated in 1873, enriched borrowers in general, and in particular business undertakers, at the expense of other members of society. New men therefore found their way into business made very smooth; and those who had already made or inherited business fortunes, found their way made smooth for retiring from active work. Thus Bagehot, writing about that time,[1] argued that the growth of new men was making English business increasingly democratic: and, though admitting that "the propensity to variation in the social as in the animal kingdom is the principle of progress," he pointed out regretfully how much the country might have gained by the long duration of families of merchant princes. But in recent years there has been some reaction, due partly to social causes, and partly to the influence of a continued fall in prices. The sons of business men are rather more inclined than they were a generation ago to take pride in their fathers' callings; and they find it harder to satisfy the demands of an ever-increasing luxury on the income which would be theirs if they withdrew from business.

Joint-stock companies.

§ 6. But the weighing in the balance of the services and therefore the earnings of employees against the earnings of management of business men is in some ways best illustrated by reference to Joint-stock companies. For in them most of the work of management is divided between salaried directors (who indeed hold a few shares

[1] *Lombard Street*, Introductory chapter.

VI, VII, 7. themselves) and salaried managers and other subordinate officials, most of whom have little or no capital of any kind; and their earnings, being almost the pure earnings of labour, are governed in the long run by those general causes which rule the earnings of labour of equal difficulty and disagreeableness in ordinary occupations.

As has already been observed,[1] joint-stock companies are hampered by internal frictions, and conflicts of interest between shareholders and debenture holders, between ordinary and preferred shareholders, and between all these and the directors; and by the need for an elaborate system of checks and counterchecks. They seldom have the enterprise, the energy, the unity of purpose and the quickness of action of a private business. But these disadvantages are of relatively small importance in some trades. That publicity, which is one of the chief drawbacks of public companies in many branches of manufacture and of speculative commerce, is a positive advantage in ordinary banking and insurance and kindred businesses; while in these, as well as in most of the transport industries (railways, tramways, canals, and the supply of gas, water, and electricity), their unbounded command over capital gives them almost undisputed sway.

When powerful joint-stock companies are working in harmony, and are not directly or indirectly involved in speculative ventures on the stock exchange, or in campaigns for the crushing or for the compulsory fusion of rivals, they generally look forward to a distant future, and pursue a far-seeing if a sluggish policy. They are seldom willing to sacrifice their reputation for the sake of a temporary gain; they are not inclined to drive such extremely hard bargains with their employees as will make their service unpopular.

Modern methods of business exercise in the aggregate a powerful tendency to adjust earnings of management to the difficulty of the work done.

§ 7. Thus then each of the many modern methods of business has its own advantages and disadvantages: and its application is extended in every direction until that limit or margin is reached, at which its special advantages for that use no longer exceed its disadvantages. Or, to put the same thing in another way, the margin of profitableness of different methods of business organization for any particular purpose, is to be regarded not as a point on any one line, but a boundary line of irregular shape cutting one after another every possible line of business organization; and these modern methods, partly on account of their great variety, but partly also on account of the scope which many of them offer to men of business ability who have no capital, render possible a much closer correspondence between the earnings of undertaking and manage-

[1] See IV. xII. 9, 10.

ment and the services by which those earnings are got than could be generally attained under the primitive system in which capital was scarcely ever applied to production by any save its owners. For then it could only be by a fortunate accident that those who had the capital and the opportunity for carrying on any trade or performing any service, of which the public was in need, had the aptitudes and the abilities required for the task. But, as it is, that share of the normal expenses of production of any commodity which is commonly classed as profits, is so controlled on every side by the action of the principle of substitution, that it cannot long diverge from the normal supply price of the capital needed, added to the normal supply price of the ability and energy required for managing the business, and lastly the normal supply price of that organization by which the appropriate business ability and the requisite capital are brought together.

The supply of business ability is drawn from a wide area, and is non-specialized.

The supply of business power is large and elastic, since the area from which it is drawn is wide. Everyone has the business of his own life to conduct; and in this he can gain some training for business management, if he has the natural aptitudes for it. There is therefore no other kind of useful rare and therefore highly-paid ability which depends so little on labour and expense applied specially to obtaining it, and so much on "natural qualities." And, further, business power is highly non-specialized; because in the large majority of trades, technical knowledge and skill become every day less important relatively to the broad and non-specialized faculties of judgment, promptness, resource, carefulness and steadfastness of purpose.[1]

It is true that in small businesses, in which the master is little more than the head workman, specialized skill is very important. And it is true that "each sort of trade has a tradition of its own, which is never written, probably could not be written, which can only be learnt in fragments, and which is best taken in early life, before the mind is shaped and the ideas fixed. But each trade in modern commerce is surrounded by subsidiary and kindred trades, which familiarize the imagination with it, and make its state known."[2] Moreover those general faculties, which are characteristic of the modern business man, increase in importance as the scale of business increases. It is they which make him out as a

[1] IV. XII. 12. When the forms of productions cease to be few and simple, it becomes "no longer true that a man becomes an employer because he is a capitalist. Men command capital because they have the qualifications to profitably employ labour. To these captains of industry . . . capital and labour resort for opportunity to perform their several functions." (Walker, *Wages Question*, ch. XIV.)

[2] Bagehot, *Postulates*, p. 75.

VI, VII, 7. leader of men; and which enable him to go straight to the kernel of the practical problems with which he has to deal, to see almost instinctively the relative proportions of things, to conceive wise and far-reaching policies, and to carry them out calmly and resolutely.[1]

Difficulties of obtaining accurate knowledge as to the true earnings of management in different trades.

It must be admitted indeed that the adjustment of supply to demand in the case of business ability is somewhat hindered by the difficulty of ascertaining exactly what is the price that is being paid for it in any trade. It is comparatively easy to find out the wages of bricklayers or puddlers by striking an average between the wages that are earned by men of various degrees of efficiency, and allowing for the inconstancy of their employment. But the gross earnings of management which a man is getting can only be found after making up a careful account of the true profits of his business, and deducting interest on his capital. The exact state of his affairs is often not known by himself; and it can seldom be guessed at all accurately even by those who are in the same trade with himself. It is not true even in a little village at the present day that everyone knows all his neighbour's affairs. As Cliffe Leslie said, "The village innkeeper, publican or shopkeeper, who is making a small fortune does not invite competition by telling his neighbours of his profits, and the man who is not doing well does not alarm his creditors by exposing the state of his affairs."[2]

They do not reach far;

But though it may be difficult to read the lessons of an individual trader's experience, those of a whole trade can never be completely hidden, and cannot be hidden at all for long. Although one cannot tell whether the tide is rising or falling by merely watching half-a-dozen waves breaking on the seashore, yet a very little patience settles the question; and there is a general agreement among business men that the average rate of profits in a trade cannot rise or fall much without general attention being attracted to the change before long. And though it may sometimes be a more difficult task for a business man than for a skilled labourer, to find out whether

[1] Bagehot (*l. c.* pp. 94–5) says that the great modern commerce has "certain general principles which are common to all kinds of it, and a person can be of considerable use in more than one kind if he understands these principles and has the proper sort of mind. But the appearance of this common element is in commerce, as in politics, a sign of magnitude, and primitive commerce is all petty. In early tribes there is nothing but the special man—the clothier, the mason, the weapon-maker. Each craft tried to be, and very much was, a mystery except to those who carried it on. The knowledge required for each was possessed by few, kept secret by these few, and nothing else was of use but this monopolised and often inherited acquirement; there was no 'general' business knowledge. The idea of a general art of money making is very modern; almost everything ancient about it is individual and particular."

[2] *Fortnightly Review*, June 1879, reprinted in his *Essays*.

he could improve his prospects by changing his trade, yet the business man has great opportunities for discovering whatever can be found out about the present and future of other trades; and if he should wish to change his trade, he will generally be able to do so more easily than the skilled workman could.

and on the whole the adjustment of those earnings to the difficulty and importance of the work done is fairly accurate.

On the whole then we may conclude that the rarity of the natural abilities and the expensiveness of the special training required for the work affect normal earnings of management in much the same way as they do the normal wages of skilled labour. In either case, a rise in the income to be earned sets in operation forces tending to increase the supply of those capable of earning it; and in either case, the extent to which the supply will be increased by a given rise of income, depends upon the social and economic condition of those from whom the supply is drawn. For though it is true that an able business man who starts in life with a great deal of capital and a good business connection is likely to obtain higher earnings of management than an equally able man who starts without these advantages; yet there are similar, though smaller, inequalities between the earnings of professional men of equal abilities who start with unequal social advantages; and the wages even of a working man depend on the start he has had in life almost as much as on the expense which his father has been able to afford for his education.[1]

[1] See VI. IV. 3. On the general functions of those who undertake the chief responsibilities of business, see Brentano, *Der Unternehmer*, 1907.

CHAPTER VIII

PROFITS OF CAPITAL AND BUSINESS POWER, CONTINUED

VI, VIII, 1.

On the supposed general tendency of the rate of profits to equality.

§ 1. THE causes that govern Earnings of Management have not been studied with any great care till within the last fifty years. The earlier economists did not do much good work in this direction because they did not adequately distinguish the component elements of profits, but searched for a simple general law governing the average rate of profits—a law which, from the nature of the case, cannot exist.

In a large business some earnings of management are classed as salaries; and in a small business much wages of labour is classed as profits.

In analysing the causes that govern profits the first difficulty which we meet is in some measure verbal. It arises from the fact that the head of a small business does himself much of the work which in a large business is done by salaried managers and foremen, whose earnings are deducted from the net receipts of the large business before its profits are reckoned, while the earnings of the whole of his labour are reckoned among his profits. This difficulty has long been recognized. Adam Smith himself pointed out that:—"The whole drugs which the best employed apothecary in a large market-town will sell in a year may not perhaps cost him above thirty or forty pounds. Though he should sell them, therefore, for three or four hundred, or at a thousand per cent. profit this may frequently be no more than the reasonable wages of his labour charged in the only way in which he can charge them, upon the price of the drugs. The greater part of the apparent profit is real wages disguised in the garb of profit. In a small seaport town a little grocer will make forty or fifty per cent. upon a stock of a single hundred pounds, while a considerable wholesale merchant in the same place will scarce make eight or ten per cent. upon a stock of ten thousand." [1]

Profits *per annum*

It is here important to distinguish between the *annual* rate of profits on the capital invested in a business, and the rate of profits

[1] *Wealth of Nations*, Book I. ch. x. Senior, *Outlines*, p. 203, puts the normal rate of profits on a capital of £100,000 at less than 10 per cent., on one of £10,000 or £20,000 at about 15 per cent., on one of £5,000 or £6,000 at 20 per cent., and "a much larger per-centage" on smaller capitals. Compare also § 4 of the preceding Chapter of the present Book. It should be noted that the nominal rate of profits of a private firm is increased when a manager, who brings no capital with him, is taken into partnership and rewarded by a share of the profits instead of a salary.

that are made every time the capital of the business is turned over; that is, every time sales are made equal to that capital, or the rate of profits *on the turnover*. At present we are concerned with profits *per annum*.

VI, VIII, I. and *on the turnover.*

The greater part of the nominal inequality between the normal rates of profit per annum in small businesses and in large would disappear, if the scope of the term profits were narrowed in the former case or widened in the latter, so that it included in both cases the remuneration of the same classes of services. There are indeed some trades in which the rate of profit, rightly estimated, on large capitals tends to be higher than on small, though if reckoned in the ordinary way it would appear lower. For of two businesses competing in the same trade, that with the larger capital can nearly always buy at the cheaper rate, and can avail itself of many economies in the specialization of skill and machinery and in other ways, which are out of the reach of the smaller business: while the only important special advantage, which the latter is likely to have, consists of its greater facilities for getting near its customers and consulting their individual wants. In trades in which this last advantage is not important, and especially in some manufacturing trades in which the large firm can sell at a better price than the small one, the outgoings of the former are proportionately less and the incomings larger; and therefore, if profits are so reckoned as to include the same elements in both cases, the rate of profit in the former case must be higher than in the latter.

A correction of this anomaly of language removes the chief source of the opinion that profits are high in a small business.

But these are the very businesses in which it most frequently happens that large firms after first crushing out small ones, either combine with one another and thus secure for themselves the gains of a limited monopoly, or by keen competition among themselves reduce the rate of profit very low. There are many branches of the textile, the metal, and the transport trades in which no business can be started at all except with a large capital; while those that are begun on a moderate scale struggle through great difficulties, in the hope that, after a time, it may be possible to find employment for a large capital, which will yield earnings of management high in the aggregate though low in proportion to the capital.

Small businesses in trades which offer great technical advantages to large capitals make very low profits.

There are some trades which require a very high order of ability, but in which it is nearly as easy to manage a very large business as one of moderate size. In rolling mills, for instance, there is little detail which cannot be reduced to routine, and a capital of £1,000,000 invested in them can be easily controlled by one able man. A rate of profits of 20 per cent. is not a very high average rate for some

VI, VIII, 2. branches of the iron trade, which demand incessant thought and contrivance in matters of detail: but it would yield £150,000 a year as earnings of management to the owner of such works. And even stronger cases are offered by recent fusions of giant firms in successive branches of the heavy iron industry. Their profits fluctuate much with the state of trade: but, though enormous in the aggregate, they are said to be on the average at a low rate.

The rate of profits is low in nearly all those trades which require very little ability of the highest order, and in which a public or private firm with a good connection and a large capital can hold its own against new-comers, so long as it is managed by men of industrious habits with sound common sense and a moderate share of enterprise. And men of this kind are seldom wanting either to a well-established public company or to a private firm which is ready to take the ablest of its servants into partnership.

On the whole, then, we may conclude firstly that the true rate of profits in large businesses is higher than at first sight appears, because much that is commonly counted as profits in the small business ought to be classed under another head, before the rate of profits in it is compared with that in a large business: and secondly that, even when this correction has been made, the rate of profit reckoned in the ordinary way declines generally as the size of the business increases.

Profits per annum are generally high in trades in which the work of management is difficult and risky;

§ 2. The normal earnings of management are of course high in proportion to the capital, and therefore the rate of profits per annum on the capital is high, when the work of management is heavy in proportion to the capital. The work of management may be heavy because it involves great mental strain in organizing and devising new methods; or because it involves great anxiety and risk: and these two things frequently go together. Individual trades have indeed peculiarities of their own, and all rules on the subject are liable to great exceptions. But the following general propositions will be found to be valid, other things being equal, and to explain many inequalities in the normal rates of profit in different trades.

where capital is relatively small and the wages-bill is relatively large.

First, the extent of the work of management needed in a business depends more on the amount of the circulating capital used than on that of the fixed. The rate of profit tends therefore to be low in trades in which there is a disproportionately large amount of durable plant, that requires but little trouble and attention when once it has been laid down. As we have seen, these trades are likely to get into the hands of joint-stock companies: and the

aggregate salaries of the directors and higher officials bear a very small proportion to the capital employed in the case of railway and water companies, and, even in a more marked degree, of companies that own canals and docks and bridges.

Further, given the proportion between the fixed and circulating capital of a business; the work of management will generally be the heavier, and the rate of profits the higher, the more important the wages-bill is relatively to the cost of material and the value of the stock-in-trade.

Risk as an element of profits and of cost.

In trades that handle costly materials, success depends very much upon good fortune and ability in buying and selling; and the order of mind required for interpreting rightly and reducing to their proper proportions the causes that are likely to affect price is rare, and can command high earnings. The allowance to be made for this is so important in certain trades as to have induced some American writers to regard profits as remuneration of risk simply; and as consisting of what remains after deducting interest and earnings of management from gross profits. But this use of the term seems on the whole not advantageous, because it tends to class the work of management with mere routine superintendence. It is of course true that as a rule a person will not enter on a risky business, unless, other things being equal, he expects to gain from it more than he would in other trades open to him, after his probable losses had been deducted from his probable gains on a fair actuarial estimate. If there were not a positive evil in such risk, people would not pay premia to insurance companies; which they know are calculated on a scale sufficiently above the true actuarial value of the risk to pay the companies' great expenses of advertising and working, and yet to yield a surplus of net profits. And where the risks are not insured for, they must be compensated in the long run on a scale about as high as would be required for the premia of an insurance company, if the practical difficulties of insurance against business risks could be overcome. But further many of those who would be most competent to manage difficult businesses with wisdom and enterprise, are repelled from great risks, because their own capital is not large enough to bear great losses. Thus a risky trade is apt to get into the hands of rather reckless people; or perhaps into the hands of a few powerful capitalists, who work it ably, but arrange among themselves that the market shall not be forced so as to prevent them from having a high rate of profit on the average.[1]

[1] On risk as an element of cost see V. VII. 4. There would be an advantage in a careful analytical and inductive study of the attractive or repellent force which various

VI, VIII, 2.

In ordinary trades, profits often vary nearly with the wages-bill.

In trades in which the speculative element is not very important, so that the work of management consists chiefly of superintendence, the earnings of management will follow pretty closely on the amount of work done in the business; and a very rough but convenient measure of this is found in the wages-bill. And perhaps the least inaccurate of all the broad statements that can be made with regard to a general tendency of profits to equality in different trades, is that where equal capitals are employed, profits tend to be a certain percentage per annum on the total capital, together with a certain percentage on the wages-bill.[1]

The normal rate of profits in an industry may be lowered by a great gradual increase in production.

A manufacturer of exceptional ability and energy will apply better methods, and perhaps better machinery than his rivals: he will organize better the manufacturing and the marketing sides of his business; and he will bring them into better relation to one another. By these means he will extend his business; and therefore he will be able to take greater advantage from the specialization both of labour and of plant.[2] Thus he will obtain increasing return and also increasing profit: for if he is only one among many producers his increased output will not materially lower the prices of his goods, and nearly all the benefit of his economies will accrue to himself. If he happens to have a partial monopoly of his branch

kinds of risks exert on persons of various temperaments, and as a consequence on earnings and profits in risky occupations; it might start from Adam Smith's remarks on the subject.

[1] There is a great difficulty in ascertaining even approximately the amounts of capital of different kinds invested in different classes of business. But guided mainly by the valuable statistics of American Bureaux, inexact as they avowedly are in this particular matter, we may conclude that the annual output is less than the capital in industries where the plant is very expensive, and the processes through which the raw material has to go are very long, as watch and cotton factories: but that it is more than four times the capital in businesses in which the raw material is expensive and the process of production rapid, *e.g.* boot factories; as well as in some industries, which make only a slight change in the form of their material, such as sugar-refining, and slaughtering and meat-packing.

Next, analysing the turnover of circulating capital and comparing the cost of raw material to the wages-bill, we find that the former is much less than the latter in watch-factories, where the bulk of the material is small, and in stone, brick and tile works, where it is of a common sort: but in the large majority of industries the cost of material is much greater than the wages-bill; and on the average of all the industries it is three and a half times as great. And in the Slight-change industries it is generally from twenty-five to fifty times as great.

Many of these inequalities disappear if the value of the raw material, coal, etc. used in a business is deducted before reckoning its output. This plan is commonly followed by careful statisticians in estimating the manufacturing output of a country, so as to avoid counting say yarn and cloth twice over; and similar reasons should make us avoid counting both cattle and fodder crops in the agricultural product of a country. This plan is however not quite satisfactory. For logically one ought to deduct the looms which a weaving factory buys as well as its yarn. Again, if the factory itself was reckoned as a product of the building trades, its value should be deducted from the output (over a term of years) of the weaving trade. Similarly with regard to farm buildings. Farm horses ought certainly not to be counted, nor for some purposes any horses used in trade. However the plan of deducting nothing but raw material has its uses, if its inaccuracy is clearly recognized.

[2] See above IV. XI. 2–4.

of industry, he will so regulate his increased output, that his monopoly profits increase.[1]

But when such improvements are not confined to one or two producers: when they arise from a general increase in demand and the output which corresponds to it; or from improved methods or machinery, that are accessible to the whole industry; or from advances made by subsidiary industries, and increased "external" economies generally; then the prices of the products will keep close to a level which yields only a normal rate of profits to that class of industry. And in the process, the industry is likely to have passed over to a class in which the normal rate of profits is lower than in its old class; because there is in it more uniformity and monotony, and less mental strain than before; and, though this is nearly the same thing in other words, because it is more suited to joint-stock management. Thus a general increase in the proportion which the *quantity* of product bears to the *quantity* of labour and capital in an industry is likely to be accompanied by a fall in the rate of profits; which may, from some points of view, be regarded as a diminishing return measured in *values*.[2]

The rate of profits on the turnover varies much more widely than the annual rate of profits on capital.

§ **3.** We may now pass from profit per annum and examine the causes that govern profit on the turnover. It is obvious that while the normal rate of profit per annum varies within narrow limits, the profit on the turnover may vary very widely from one branch of trade to another, because it depends on the length of time and the amount of work required for the turnover. Thus wholesale dealers, who buy and sell large quantities of produce in single transactions, and who are able to turn over their capital very rapidly, may make large fortunes though their average profit on the turnover is less than one per cent.; and, in the extreme case of large stock-exchange dealings, even when it is only a small fraction of one per cent. But a shipbuilder who has to put labour and material into the ship, and to provide a berth for it, a long while before it is ready for sale, and who has to take care for every detail connected with it, must add a very high percentage to his direct and indirect outlay in order to remunerate him for his labour, and the locking up of his capital.[3]

[1] See above p. 399-400. [2] Compare pp. 266-7.

[3] He would however not need to charge a high rate of profits per annum on that part of his capital which he had sunk in the earlier stages of building the ship; for that capital, when once invested, would no longer require any special exercise of his ability and industry, and it would be sufficient for him to reckon his outlay "accumulated" at a high rate of compound interest; but in that case he must count the value of his own labour as part of his early outlay. On the other hand, if there be any trade in which a continuous and nearly uniform expenditure of trouble is called for on all the capital invested, then it would be reasonable in that trade to find the "accumulated" value of the earlier investments by the addition of a "compound" rate of profit

VI, VIII, 4.

Again, in the textile industries some firms buy raw material and turn out finished goods, while others confine themselves to spinning, to weaving or to finishing; and it is obvious that the rate of profit on the turnover of one of the first class must be equal to the sum of the rates of profit of one of each of the three other classes.[1] Again, the retail dealer's profit on the turnover is often only five or ten per cent. for commodities which are in general demand, and which are not subject to changes of fashion; so that while the sales are large, the necessary stocks are small, and the capital invested in them can be turned over very rapidly, with very little trouble and no risk. But a profit on the turnover of nearly a hundred per cent. is required to remunerate the retailer of some kinds of fancy goods which can be sold but slowly, of which varied stocks must be kept, which require a large place for their display, and which a change of fashion may render unsaleable except at a loss; and even this high rate is often exceeded in the case of fish, fruit, flowers and vegetables.[2]

But each branch of trade has its customary or fair rate of profit on the turnover.

§ 4. We see then that there is no general tendency of profits on the turnover to equality; but there may be, and as a matter of fact there is in each trade and in every branch of each trade, a more or less definite rate of profits on the turnover which is regarded as a "fair" or normal rate. Of course these rates are always changing in consequence of changes in the methods of trade; which are generally begun by individuals who desire to do a larger trade at a lower rate of profit on the turnover than has been customary, but at a larger rate of profit per annum on their capital. If however there happens to be no great change of this kind going on, the traditions of the trade that a certain rate of profit on the turnover should be charged for a particular class of work are of great practical service to those in the trade. Such traditions are the outcome of much experience tending to show that, if that rate is charged, a proper allowance will be made for all the costs (supplementary as well as prime) incurred for that particular purpose, and in addition

(*i.e.* a rate of profit increasing geometrically as compound interest does). And this plan is frequently adopted in practice for the sake of simplicity even where it is not theoretically quite correct.

[1] Strictly speaking it will be a little greater than the sum of these three, because it will include compound interest over a longer period.

[2] The fishmongers and greengrocers in working-class quarters especially lay themselves out to do a small business at a high rate of profits; because each individual purchase is so small that the customer would rather buy from a dear shop near at hand than go some way to a cheaper one. The retailer therefore may not be getting a very good living though he charges a penny for what he bought for less than a halfpenny. The same thing was however perhaps sold by the fisherman or the farmer for a farthing or even less: and the direct cost of carriage and insurance against loss will not account for any great part of this last difference. Thus there seems to be some justification for the popular opinion that the middlemen in these trades have special facilities for obtaining abnormally high profits by combination among themselves.

the normal rate of profits per annum in that class of business will be afforded. If they charge a price which gives much less than this rate of profit on the turnover they can hardly prosper; and if they charge much more they are in danger of losing their custom, since others can afford to undersell them. This is the "fair" rate of profit on the turnover which an honest man is expected to charge for making goods to order, when no price has been agreed on beforehand; and it is the rate which a court of law will allow, in case a dispute should arise between buyer and seller.[1]

Profits are a constituent element of normal supply-price.

§ 5. During all this inquiry we have had in view chiefly the ultimate, or long-period or true normal results of economic forces; we have considered the way in which the supply of business ability in command of capital tends in the long run to adjust itself to the demand; we have seen how it seeks constantly every business and every method of conducting every business in which it can render services that are so highly valued by persons who are able to pay good prices for the satisfaction of their wants, that those services will in the long run earn a high reward. The motive force is the competition of undertakers: each one tries every opening, forecasting probable future events, reducing them to their true relative proportions, and considering what surplus is likely to be afforded by the receipts of any undertaking over the outlay required for it. All his prospective gains enter into the profits which draw him towards the undertaking; all the investments of his capital and

[1] The expert evidence that is given in such cases is full of instruction to the economist in many ways, and in particular because of the use of mediæval phrases as to the customs of the trade, with a more or less conscious recognition of the causes which have produced those customs, and to which appeal must be made in support of their continued maintenance. And it almost always comes out finally that if the "customary" rate of profit on the turnover is higher for one class of job than another, the reason is that the former does (or did a little while ago) require a longer locking-up of capital; or a greater use of expensive appliances (especially such as are liable to rapid depreciation, or cannot be kept always employed, and therefore must pay their way on a comparatively small number of jobs); or that it requires more difficult or disagreeable work, or a greater amount of attention on the part of the undertaker; or that it has some special element of risk for which insurance has to be made. And the unreadiness of experts to bring to light these justifications of custom, which are lying almost hidden from themselves in the recesses of their own minds, gives ground for the belief that if we could call to life and cross-examine mediæval business men, we should find much more half-conscious adjustment of the rate of profit to the exigencies of particular cases than has been suggested by historians. Many of them fail sometimes to make it clear whether the customary rate of profits of which they are speaking is a certain rate on the turnover, or such a rate on the turnover as will afford in the long run a certain rate of profits per annum on the capital. Of course the greater uniformity of the methods of business in mediæval times, would enable a tolerably uniform rate of profits on the capital per annum to exist without causing so great variations in the rate on the turnover as are inevitable in modern business. But still it is clear that if one kind of rate of profits were nearly uniform, the other would not be; and the value of much that has been written on mediæval economic history seems to be somewhat impaired by the absence of a distinct recognition of the differences between the two kinds, and between the ultimate sanctions on which customs relating severally to them must depend.

VI, VIII, 5. energies in making the appliances for future production, and in building up the "immaterial" capital of a business connection, have to show themselves to him as likely to be profitable, before he will enter on them: the whole of the profits which he expects from them enter into the reward, which he expects in the long run for his venture. And if he is a man of normal ability (normal that is for that class of work), and is on the margin of doubt whether to make the venture or not, they may be taken as true representatives of the (marginal) normal expenses of production of the services in question. Thus the whole of the normal profits enter into true or long-period supply price.

The causes which govern the normal levels of wages and the various elements of profits, resemble one another

The motives which induce a man and his father to invest capital and labour in preparing him for his work as an artisan, as a professional man, or as a business man, are similar to those which lead to the investment of capital and labour in building up the material plant and the organization of a business. In each case the investment (so far as man's action is governed by deliberate motive at all) is carried up to that margin at which any further investment appears to offer no balance of gain, no excess or surplus of utility over "disutility"; and the price, that is expected as a reward for all this investment, is therefore a part of the normal expenses of production of the services rendered by it.

A long period of time is however needed in order to get the full operation of all these causes, so that exceptional success may be balanced against exceptional failure. On the one hand are those who succeed abundantly because they turn out to have rare ability or rare good fortune either in the particular incidents of their speculative enterprises, or in meeting with a favourable opportunity for the general development of their business. And on the other are those who are mentally or morally incapable of making good use of their training and their favourable start in life, who have no special aptitude for their calling, whose speculations are unfortunate, or whose businesses are cramped by the encroachment of rivals, or left stranded by the tide of demand receding from them and flowing in some other direction.

more nearly than those which govern fluctuations in their values.

But though these disturbing causes may thus be neglected in problems relating to normal earnings and normal value; they assume the first rank, and exert a predominating influence, with regard to the incomes earned by particular individuals at particular times. And, since these disturbing causes affect profits and the earnings of management in very different ways from those in which they affect ordinary earnings, there is a scientific necessity for treat-

ing differently profits and ordinary earnings when we are discussing temporary fluctuations and individual incidents. Questions relating to market fluctuations cannot indeed be properly handled till the theories of money, credit and foreign trade have been discussed: but even at this stage we may note the following contrast between the ways in which disturbing causes such as we have just described affect profits and ordinary earnings. VI, VIII, 6, 7.

§ 6. In the first place the undertaker's profits bear the first brunt of any change in the price of those things which are the product of his capital (including his business organization), of his labour and of the labour of his employees; and as a result fluctuations of his profits generally precede fluctuations of their wages, and are much more extensive. For, other things being equal, a comparatively small rise in the price for which he can sell his product is not unlikely to increase his profit manyfold, or perhaps to substitute a profit for a loss. That rise will make him eager to reap the harvest of good prices while he can; and he will be in fear that his employees will leave him or refuse to work. He will therefore be more able and more willing to pay the high wages; and wages will tend upwards. But experience shows that (whether they are governed by sliding scales or not) they seldom rise as much in proportion as prices; and therefore they do not rise nearly as much in proportion as profits.

First difference. Profits fluctuate with prices and in even greater ratio: but the wages of employees lag behind, and their fluctuations are less.

Another aspect of the same fact is that when trade is bad, the employee at worst is earning nothing towards the support of himself and his family; but the employer's outgoings are likely to exceed his incomings, particularly if he is using much borrowed capital. In that case even his gross earnings of management are a negative quantity: that is, he is losing his capital. In very bad times this happens to a great number, perhaps the majority of undertakers; and it happens almost constantly to those who are less fortunate, or less able, or less well fitted for their special trade than others.

§ 7. To pass to another point, the number of those who succeed in business is but a small percentage of the whole; and in their hands are concentrated the fortunes of others several times as numerous as themselves, who have made savings of their own, or who have inherited the savings of others and lost them all, together with the fruits of their own efforts, in unsuccessful business. In order therefore to find the average profits of a trade we must not divide the aggregate profits made in it by the number of those who are reaping them, nor even by that number added to the number who have failed: but from the aggregate profits of the successful

Second difference. The profits of individuals differ more widely than ordinary earnings do, and their average value is over-

VI, VIII, 8.

estimated, because those who lose all their capital disappear from sight.

we must subtract the aggregate losses of those who have failed, and perhaps disappeared from the trade; and we must then divide the remainder by the sum of the numbers of those who have succeeded and those who have failed. It is probable that the true gross earnings of management, that is, the excess of profits over interest, is not on the average more than a half, and in some risky trades not more than a tenth part, of what it appears to be to persons who form their estimate of the profitableness of a trade by observation only of those who have secured its prizes. There are, however, as we shall presently see, reasons for thinking that the risks of trade are on the whole diminishing rather than increasing.[1]

Third difference. The true earnings of effort are nearly always a considerable part of the income of the artisan and professional man; but not of the business man.

§ 8. We may pass to another difference between the fluctuations of profits and ordinary earnings. We have seen that before free capital and labour have been invested in securing the skill required for the work of the artisan or professional man, the income expected to be derived from them is of the nature of profits: though the rate of such profits which is required, is often high for two reasons:—the people who make the outlay do not themselves reap the greater part of the reward arising from it; and they are frequently in straitened circumstances, and not able to invest for a distant return without great self-denial. And we have seen that, when the artisan or professional man has once obtained the skill required for his work, a part of his earnings are for the future really a quasi-rent of the capital and labour invested in fitting him for his work, in obtaining

[1] A century ago many Englishmen returned from the Indies with large fortunes, and the belief spread that the average rate of profits to be made there was enormous. But, as Sir W. Hunter points out (*Annals of Rural Bengal*, ch. VI.), the failures were numerous, but only "those who drew prizes in the great lottery returned to tell the tale." And at the very time when this was happening, it used commonly to be said in England that the families of a rich man and his coachman would probably change places within three generations. It is true that this was partly due to the wild extravagance common among young heirs at that time, and partly to the difficulty of finding secure investments for their capital. The stability of the wealthy classes of England has been promoted almost as much by the spread of sobriety and education as by the growth of methods of investment, which enable the heirs of a rich man to draw a secure and lasting income from his wealth though they do not inherit the business ability by which he acquired it. There are however even now districts in England, in whch the majority of manufacturers are workmen or the sons of workmen. And in America, though foolish prodigality is perhaps less common than in England, yet the greater changefulness of conditions, and the greater difficulty of keeping a business abreast of the age, have caused it commonly to be said that a family passes "from shirt sleeves to shirt sleeves" in three generations. Wells says (*Recent Economic Changes*, p. 351), "There has long been a substantial agreement among those competent to form an opinion, that ninety per cent. of all the men who try to do business on their own account fail of success." And Mr. J. H. Walker gives (*Quarterly Journal of Economics*, Vol. II. p. 448) some detailed statistics with regard to the origin and careers of the manufacturers in the leading industries of Worcester in Massachusetts between 1840 and 1888. More than nine-tenths of them began life as journeymen; and less than ten per cent. of the sons of those who were on the list of manufacturers in 1840, 1850 and 1860, had any property in 1888, or had died leaving any. And as to France, M. Leroy Beaulieu says (*Répartition des Richesses*, ch. XI.) that out of every hundred new businesses that are started twenty disappear almost at once, fifty or sixty vegetate, neither rising nor falling, and only ten or fifteen are successful.

his start in life, his business connections, and generally his opportunity for turning his faculties to good account; and only the remainder of his income is true earnings of effort. But this remainder is generally a large part of the whole. And here lies the contrast. For when a similar analysis is made of the profits of the business man, the proportions are found to be different: in his case the greater part is quasi-rent.

The income which the undertaker of business on a large scale gets from the capital, material and immaterial, invested in his business is so great, and liable to such violent fluctuations from a considerable negative to a large positive quantity, that he often thinks very little of his own labour in the matter. If profitable business opens out to him, he regards the harvest accruing from it as almost pure gain; there is so little difference between the trouble of having his business on his hands only partially active, and that of working it to its full capacity, that as a rule it scarcely occurs to him to set off his own extra labour as a deduction from those gains: they do not present themselves to his mind as to any considerable extent earnings purchased by extra fatigue, in the same way as the extra earnings got by working overtime do to the artisan. This fact is the chief cause, and to some extent the justification, of the imperfect recognition by the general public, and even by some economists, of the fundamental unity underlying the causes that determine normal profits and normal wages.

Fourth difference. A large share of the income of successful business men is a surplus due to rare natural faculties.

Closely allied to the preceding difference is another. When an artisan or a professional man has exceptional natural abilities, which are not made by human effort, and are not the result of sacrifices undergone for a future gain, they enable him to obtain a surplus income over what ordinary persons could expect from similar exertions following on similar investments of capital and labour in their education and start in life; a surplus which is of the nature of rent.

But, to revert to a point mentioned at the end of last chapter, the class of business undertakers contains a disproportionately large number of persons with high natural ability; since, in addition to the able men born within its ranks it includes also a large share of the best natural abilities born in the lower ranks of industry. And thus while profits on capital invested in education is a specially important element in the incomes of professional men taken as a class, the rent of rare natural abilities may be regarded as a specially important element in the incomes of business men, so long as we consider them as individuals. (In relation to normal value the

earnings even of rare abilities are, as we have seen, to be regarded rather as a quasi-rent than as a rent proper.)

But there are exceptions to this rule. The humdrum business man, who has inherited a good business and has just sufficient force to keep it together, may reap an income of many thousands a year, which contains very little rent of rare natural qualities. And, on the other hand, the greater part of incomes earned by exceptionally successful barristers, and writers, and painters, and singers, and jockeys may be classed as the rent of rare natural abilities—so long at least as we regard them as individuals, and are not considering the dependence of the normal supply of labour in their several occupations on the prospects of brilliant success which they hold out to aspiring youth.

Changes in the industrial environment affect the profits of individual businesses more than they do ordinary earnings.

The income of a particular business is often very much affected by changes in its industrial environment and opportunity or conjuncture. But similar influences affect the special income derived from the skill of many classes of workers. The discovery of rich copper-mines in America and Australia lowered the earning power of the skill of Cornish miners, so long as they stayed at home: and every new discovery of rich mines in the new districts raised the earning power of the skill of those miners who had already gone there. And again, the growth of a taste for theatrical amusements, while raising the normal earnings of actors, and inducing an increased supply of their skill, raises the earning power of the skill of those already in the profession, a great part of which is, from the point of view of the individual, a producer's surplus due to rare natural qualities.[1]

[1] The late General Walker rendered excellent service in explaining the causes that govern wages on the one hand and earnings of management on the other. But he maintained (*Political Economy*, § 311) that profits do not form a part of the price of manufactured products; and he does not limit that doctrine to short periods, for which, as we have seen, the income derived from all skill, whether exceptional or not, whether that of an employer or a workman, may be regarded as a quasi-rent. He uses the word "profits" in an artificial sense; for, having excluded interest altogether from profits, he assumes that the "No-profits employer" earns "on the whole or in the long run the amount which he could have expected to receive as wages if employed by others" (*First Lessons*, 1889, § 190): that is to say, the "No-profits employer" obtains, in addition to interest on his capital, normal net earnings of management of men of his ability whatever that may be. Thus profits in Walker's sense exclude four-fifths of what are ordinarily classed as profits in England (the proportion would be rather less in America, and rather more on the Continent than in England). So that his doctrine would appear to mean only that that part of the employer's income, which is due to exceptional abilities or good fortune, does not enter into price. But the prizes as well as the blanks of every occupation, whether it be that of an employer or not, take their part in determining the number of persons who seek that occupation and the energy with which they give themselves to their work: and therefore do enter into *normal* supply price. Walker appears to rest his argument mainly on the important fact, which he has done much to make prominent, that the ablest employers, who in the long run get the highest profits, are as a rule those who pay the highest wages to the workman and sell at the lowest price to the consumer. But it is an

§ 9. Next let us consider in relation to one another the interests of different industrial classes engaged in the same trade. VI, VIII, 9, 10.

Relations between the interests of different classes of workers in the same trade.

This solidarity is a special case of the general fact that the demand for the several factors of production of any commodity is a joint demand, and we may refer back to the illustration of this general fact which is given in Book V. chapter VI. We there saw how a change in the supply of (say) plasterers' labour would affect the interests of all other branches of the building trades in the same way, but much more intensely than it would the general public. The fact is that the incomes derived from the specialized capital and the specialized skill belonging to all the various industrial classes engaged in producing houses, or calico, or anything else, depend very much on the general prosperity of the trade. And in so far as this is the case they may be regarded for short periods as shares of a composite or joint income of the whole trade. The share of each class tends to rise when this aggregate income is increased by an increase in their own efficiency or by any external cause. But when the aggregate income is stationary, and any one class gets a better share than before, it must be at the expense of the others. This is true of the whole body of those engaged in any trade; and it is true in a special sense of those who have spent a great part of their lives in working together in the same business establishment.

A part of the gains of a business is derived from its connections and organization, and would often be lost if the employees deserted it.

§ 10. The earnings of a successful business, looked at from the point of view of the business man himself, are the aggregate of the earnings, firstly, of his own ability, secondly, of his plant and other material capital, and thirdly, of his good-will, or business organization and connection. But really it is more than the sum of these: for his efficiency depends partly on his being in that particular business; and if he were to sell it at a fair price, and then engage himself in another business, his income would probably be much diminished. The whole value of his business connection to him when working it is a notable instance of Conjuncture or Opportunity *value*. It is mainly a product of ability and labour, though good fortune may have contributed to it. That part which is transferable, and may be bought by a private individual, or by a large amalgamation of firms, must be entered among their costs; and is in a sense a Conjuncture or Opportunity *cost*.

The point of view of the employer however does not include the whole gains of the business: for there is another part which attaches

equally true and an even more important fact that those workmen who get the highest wages are as a rule those who turn their employers' plant and material to best account (see VI. III. 2), and thus enable him both to get high profits for himself and to charge low prices to the consumer.

VI, VIII, 10.

to his employees. Indeed, in some cases and for some purposes, nearly the whole income of a business may be regarded as a quasi-rent, that is an income determined for the time by the state of the market for its wares, with but little reference to the cost of preparing for their work the various things and persons engaged in it. In other words it is a *composite quasi-rent* [1] divisible among the different persons in the business by bargaining, supplemented by custom and by notions of fairness—results which are brought about by causes, that bear some analogy to those that, in early forms of civilization, have put the producer's surplus from the land almost permanently into the hands not of single individuals, but of cultivating firms. Thus the head clerk in a business has an acquaintance with men and things, the use of which he could in some cases sell at a high price to rival firms. But in other cases it is of a kind to be of no value save to the business in which he already is; and then his departure would perhaps injure it by several times the value of his salary, while probably he could not get half that salary elsewhere.[2]

When there would be no such loss, the quasi-rent of the employees' skill depends on the prosperity of the trade in general.

It is important to see how the position of such employees differs from that of others, whose services would be of almost equal value to any business in a large trade. The income of one of these in any week consists, as we have seen, partly of a recompense for the fatigue incurred by the work of that week, and partly of a quasi-rent of his specialized skill and ability: and, assuming competition to be perfectly efficient, this quasi-rent is determined by the price which either his present employers, or any other, would be willing to pay for his services in the state in which the market for their wares is during that week. The prices, that have to be paid for given work of a given kind, being thus determined by the general conditions of the trade, these prices enter into the direct outgoings which have to be deducted from its gross earnings in order to ascertain the quasi-rent of this particular firm at the time: but in the rise or fall of that quasi-rent the employees would have no share. In fact however competition is not thus perfectly efficient. Even

[1] Compare V. x. 8.

[2] When a firm has a speciality of its own, many even of its ordinary workmen would lose a great part of their wages by going away, and at the same time injure the firm seriously. The chief clerk may be taken into partnership, and the whole of the employees may be paid partly by a share in the profits of the concern; but whether this is done or not, their earnings are determined, not so much by competition and the direct action of the law of substitution, as by a bargain between them and their employers, the terms of which are theoretically arbitrary. In practice however they will probably be governed by a desire to "do what is right," that is, to agree on payments that represent the normal earnings of such ability, industry and special training as the employees severally possess, with something added if the fortunes of the firm are good, and something subtracted if they are bad.

where the same price is paid all over the market for the same work with the same machinery, the prosperity of a firm increases the chance of advancement for each of its employees, and also his chance of continuous employment when trade is slack, and much-coveted overtime when trade is good.

Profit-sharing.

Thus there is *de facto* some sort of profit-and-loss sharing between almost every business and its employees; and perhaps this is in its very highest form when, without being embodied in a definite contract, the solidarity of interests between those who work together in the same business is recognized with cordial generosity as the result of true brotherly feeling. But such cases are not very common; and as a rule the relations between employers and employed are raised to a higher plane both economically and morally by the adoption of the system of profit-sharing; especially when it is regarded as but a step towards the still higher but much more difficult level of true co-operation.

Combinations among employers and among employees.

If the employers in any trade act together and so do the employed, the solution of the problem of wages becomes indeterminate; and there is nothing but bargaining to decide the exact shares in which the excess of its incomings over its outgoings for the time should be divided between employers and employed. Leaving out of account industries which are being superseded, no lowering of wages will be permanently in the interest of employers, which drives many skilled workers to other markets, or even to other industries in which they abandon the special earnings of skill; and wages must be high enough in an average year to attract young people to the trade. This sets lower limits to wages, and upper limits are set by corresponding necessities as to the supply of capital and business power. But what point between these limits should be taken at any time can be decided only by higgling and bargaining; which are however likely to be tempered somewhat by ethico-prudential considerations, especially if there be a good court of conciliation in the trade.

The problem is in practice even more complex. For each group of employees is likely to have its own union, and to fight for its own hand. The employers act as buffers: but a strike for higher wages on the part of one group may, in effect, deplete the wages of some other group almost as much as the employers' profits.

This is not a fitting place for a study of the causes and effects of trade combinations and of alliances and counter-alliances among employers and employed, as well as among traders and manufacturers. They present a succession of picturesque incidents and

VI, VIII, 10. romantic transformations, which arrest public attention and seem to indicate a coming change of our social arrangements now in one direction and now in another; and their importance is certainly great and grows rapidly. But it is apt to be exaggerated; for indeed many of them are little more than eddies, such as have always fluttered over the surface of progress. And though they are on a larger and more imposing scale in this modern age than before; yet now, as ever, the main body of movement depends on the deep silent strong stream of the tendencies of normal distribution and exchange; which "are not seen," but which control the course of those episodes which "are seen." For even in conciliation and arbitration, the central difficulty is to discover what is that normal level from which the decisions of the court must not depart far under penalty of destroying their own authority.

CHAPTER IX

RENT OF LAND

We begin by supposing land to be cultivated by its owners, to avoid questions affecting its tenure.

§ 1. It has been argued in Book V. that the rent of land is no unique fact, but simply the chief species of a large genus of economic phenomena; and that the theory of the rent of land is no isolated economic doctrine, but merely one of the chief applications of a particular corollary from the general theory of demand and supply; that there is a continuous gradation from the true rent of those free gifts which have been appropriated by man, through the income derived from permanent improvements of the soil, to those yielded by farm and factory buildings, steam-engines and less durable goods. In this and the following chapter we are to make a special study of the net income of land. That study has two parts. One part relates to the total quantity of the net income, or producer's surplus from land: the other to the way in which this income is distributed between those who have an interest in the land. The first is general, whatever be the form of land tenure. We will begin with it, and *suppose that the cultivation of the land is undertaken by its owner.*

The income attributed to the inherent properties of land.

We may call to mind that the land has an " inherent " income of heat and light and air and rain, which man cannot greatly affect; and advantages of situation, many of which are wholly beyond his control, while but few of the remainder are the direct result of the investment of capital and effort in the land by its individual owners. These are the chief of its properties, the supply of which is not dependent on human effort, and which would therefore not be increased by extra rewards to that effort: and a tax on which would always fall exclusively on the owners.[1]

The income derived from permanent improvements.

On the other hand those chemical or mechanical properties of the soil, on which its fertility largely depends, can be modified, and in extreme cases entirely changed by man's action. But a tax on the income derived from improvements which, though capable of general application are yet slowly made and slowly exhausted, would not appreciably affect the supply of them during a short period, nor therefore the supply of produce due to them. It would consequently fall in the main on the owner; a leaseholder being regarded for the

[1] But compare V. XI. 2 for exceptions to the rule as to situation rent.

VI, IX, 2. time as owner, subject to a mortgage. In a long period, however, it would diminish the supply of them, would raise the normal supply price of produce and fall on the consumer.

Résumé and application of the discussion in Book IV. as to the tendency to diminishing return.

§ 2. Now let us revert to our study of the tendency to diminishing return in agriculture in the fourth Book; still supposing that the owner of the land undertakes its cultivation, so that our reasoning may be general, and independent of the incidents of particular forms of land tenure.

We saw how the return to successive doses of capital and labour, though it may increase for the first few doses, will begin to diminish, when the land is already well cultivated. The cultivator continues to apply additional capital and labour, till he reaches a point at which the return is only just sufficient to repay his outlay and reward him for his own work. That will be the dose on the margin of cultivation, whether it happens to be applied to rich or to poor land; an amount equal to the return to it will be required, and will be sufficient to repay him for each of his previous doses. The excess of the gross produce over this amount is his producer's surplus.

He looks forward as far as he can: but it is seldom possible to look forward very far. And at any given time he takes for granted all that richness of the soil which results from permanent improvements and the income (or quasi-rent) derived from those improvements, together with that due to the original qualities of the soil, constitutes his producer's surplus or rent. Henceforth it is only the income derived from new investments that appears as earnings and profits: he carries these new investments up to the margin of profitableness; and his producer's surplus or rent is the excess of the gross income from the improved land over what is required to remunerate him for the fresh doses of capital and labour he annually applies.

This surplus depends on, firstly, the richness of the land, and secondly, the relative values of those things which he has to sell and of those things which he needs to buy. The richness or fertility of the land, we have seen, cannot be measured absolutely, for it varies with the nature of the crops raised, and with the methods and intensity of cultivation. Two pieces of land cultivated even by the same man with equal expenditures of capital and labour, are likely, if they yield equal crops of barley, to give unequal crops of wheat; if they return equal crops of wheat when cultivated slightly or in a primitive fashion, they are likely to yield unequal crops when cultivated intensively, or on modern methods. Further, the prices at which the various requisites of the farm can be bought, and its

various products sold, depend on the industrial environment; and changes in that are continually changing the relative values of different crops and therefore the relative values of land in different situations.

The cultivators must be supposed to be of normal ability and enterprise.

Lastly, we suppose the cultivator to be of normal ability relatively to the task he has undertaken, and the circumstances of time and place. If he is of less ability his actual gross produce will be less than that which normally should come from the land: it will be yielding to him less than its true producer's surplus. If, on the contrary, he is of more than normal ability, he will be getting in addition to the producer's surplus due to the land, some producer's surplus due to rare ability.

A rise in the real value of produce generally raises the produce value of the surplus,

§ 3. We have already traced in some detail the way in which a rise in the value of agricultural produce increases the producer's surplus, measured in terms of produce, from all lands, but especially from those where the tendency to diminishing return acts but feebly.[1] We have seen that generally speaking it raises the value of poor lands relatively to rich: or in other words, that if a person anticipates a rise in the value of produce, he may expect a larger future income from investing a given sum of money in poor land at present prices than from investing it in rich land.[2]

and its real value even more.

Next, the real value of the producer's surplus, *i.e.* its value measured in terms of general purchasing power, will rise relatively to its produce value, in the same ratio as the value of produce measured in the same way has risen: that is to say, a rise in the value of produce causes a double rise in the value of producer's surplus.

Necessity for distinguishing between changes in the labour value of produce, and in its general purchasing power.

The term the "real value" of produce is indeed ambiguous. Historically it has most often been used to mean the real value from the point of view of the consumer. This use is rather dangerous: for there are some purposes for which it is better to consider real value from the point of view of the producer. But with this caution we may use the term "labour-value" to express the amount of labour of a given kind that the produce will purchase; and "real value" to mean the amount of necessaries, comforts, and luxuries

[1] IV. III. 3. Thus we see that if the value of produce rises from *OH′* to *OH* (figs. 12, 13, 14), so that while an amount of produce *OH* was required to remunerate a dose of capital and labour before the rise, an amount *OH′* would suffice after the rise, then the producer's surplus will be increased a little in the case of lands of the class represented in fig. 12, with regard to which the tendency to diminishing return acts quickly; much more with regard to the second class of lands (fig. 13), and most of all with regard to the third class (fig. 14).

[2] *Ib.* § 4. Comparing two pieces of land (figs. 16 and 17) with regard to which the tendency to diminishing return acts in a similar way, but of which the first is rich and the second poor, we found that the rise of producer's surplus from *AHC* to *AH′C′*, caused by a rise in the price of produce in the ratio *OH* to *OH′*, was much larger in proportion in the second case.

VI, IX, 4. of life that a given amount of produce will purchase. A rise in the labour-value of raw produce may imply an increasing pressure of population on the means of subsistence; and a rise of the producer's surplus from land due to that cause goes together with, and is a sort of measure of, the degradation of the people. But if, on the other hand, the rise in the real value of raw produce has been caused by an improvement of the arts of production, other than agricultural, it will probably be accompanied by a rise in the purchasing power of wages.

Ricardo's doctrine with regard to the effects of improvements on producer's surplus, though often stated carelessly, was thought out carefully.

§ 4. In all this it has been clear that the producer's surplus from land is not evidence of the greatness of the bounty of nature, as was held by the Physiocrats and in a more modified form by Adam Smith: it is evidence of the limitations of that bounty. But it must be remembered that inequalities of situation relatively to the best markets are just as powerful causes of inequalities of producer's surplus, as are inequalities of absolute productiveness.[1]

This truth and its chief consequences, many of which seem now so obvious, were first made manifest by Ricardo. He delighted to argue that no surplus can be reaped from the ownership of those of nature's gifts the supply of which is everywhere practically unlimited: and in particular that there would be no surplus from land if there were an unlimited supply of it all equally fertile and all equally accessible. He carried this argument further, and showed that an improvement in the arts of cultivation, equally applicable to all soils (which is equivalent to a general increase in the natural fertility of land), will be nearly sure to lower the aggregate corn-surplus and quite sure to lower the aggregate real surplus derived

[1] England is so small and so thickly peopled, that even milk and vegetables which require to be marketed quickly, and even hay in spite of its bulk, can be sent across the country at no inordinate expense: while for the staple products, corn and live stock, the cultivator can get nearly the same net price in whatever part of England he is. For this reason English economists have ascribed to fertility the first rank among the causes which determine the value of agricultural land; and have treated situation as of secondary importance. They have therefore often regarded the producer's surplus, or rental value, of land as the excess of the produce which it yields, over what is returned to equal capital and labour (applied with equal skill) to land that is so barren as to be on the margin of cultivation; without taking the trouble to state explicitly either that the two pieces of land must be in the same neighbourhood, or that separate allowance must be made for differences in the expense of marketing. But this method of speaking did not come naturally to economists in new countries, where the richest land might lie uncultivated, because it had not good access to markets. To them situation appeared at least equally important with fertility in determining the value of land. In their view land on the margin of cultivation, was land far from markets; and, especially, land far from railways that lead to good markets: and the producer's surplus presented itself to them as the excess value of the produce from well-situated land over that which equal labour, capital (and skill), would get on the worst-situated land; allowance being of course made for differences of fertility, if necessary. In this sense the United States cannot any longer be regarded as a new country: for all the best land is taken up, and nearly all of it has obtained access by cheap railways to food markets.

from the land that supplies a given population with raw produce. VI, IX, 4.
He also pointed out that, if the improvements affected chiefly those lands that were already the richest, it might raise the aggregate surplus; but that, if it affected chiefly the poorer class of lands, it would lower that aggregate very much.

It is quite consistent with this proposition to admit that an improvement in the arts of cultivation of the land of England now would raise the aggregate surplus from her land, because it would increase the produce without materially lowering its price, unless it were accompanied by a similar improvement in those countries from which she imports raw produce; or, which comes to the same thing for this purpose, by an improvement in the means of communication with them. And as Ricardo himself says, improvements that apply equally to all the land supplying the same market, "as they give a great stimulus to population, and at the same time enable us to cultivate poorer lands with less labour, are ultimately of immense advantage to the landlords." [1]

Original and acquired properties of land.

There is some interest in the attempt to distinguish that part of the value of land which is the result of man's labour, from that which is due to the original bounty of nature. Part of its value is caused by highways and other improvements that were made for the general purposes of the country, and are not a special charge on its agriculture. Counting these in, List, Carey, Bastiat and others contend that the expense of bringing land from its original to its present condition would exceed the whole value it has now; and hence they argue that all of its value is due to man's labour. Their facts may be disputed; but they are really not relevant to their conclusions. What is wanted for their argument is that the present value of land should not exceed the expense, in so far as it can properly be charged to agricultural account, of bringing the land from its original condition to one in which it would be as fertile and generally useful for agricultural purposes as it now is. Many of the changes wrought in it were made to suit agricultural methods that are long since obsolete; and some of them even deduct from, rather than add to, the value of the land. And further, the expenses of making the change must be the net expenses after adding indeed interest on the gradual outlay, but also after deducting the aggregate value of the extra produce which has, from first to last, been attributable to the improvement. The value of land in a well-peopled district is generally much greater than these expenses, and often many times as great.

[1] Footnote to his third Chapter.

VI, IX, 5.

The argument so far applicable to all systems of land tenure.

§ 5. The argument of this chapter so far is applicable to all systems of land tenure, which recognize private ownership of land in any form; for it is concerned with that producer's surplus, which accrues to the owner if he cultivates his land himself; or, if he does not, then accrues to him and his tenants, regarded as a firm engaged in the business of cultivation. Thus it holds true, whatever be the division which custom or law or contract may have arranged between them with regard to their several shares of the cost of cultivation on the one hand, and the fruits of the cultivation on the other. The greater part of it is also independent of the stage of economic development which has been reached; and it is valid even if little or no produce is sent to market, and dues are levied in kind and so on.[1]

The division between the landlord's and the farmer's share in the English system is the most important for science.

At the present day, in those parts of England where custom and sentiment count for least, and free competition and enterprise for most in the bargaining for the use of land, it is commonly understood that the landlord supplies, and in some measure maintains, those improvements which are slowly made and slowly worn out. That being done, he requires of his tenant the whole producer's surplus which the land thus equipped is estimated to afford in a year of normal harvests and normal prices, after deducting enough to replace the farmer's capital with normal profits, the farmer standing to lose in bad years and gain in good years. In this estimate it is implicitly assumed that the farmer is a man of normal ability and enterprise for that class of holding; and therefore, if he rises above that standard, he will himself reap the benefit; and if he falls below it will himself bear the loss, and perhaps ultimately leave the farm. In other words, that part of the income derived from the land which the landlord obtains, is governed, for all periods of moderate length, mainly by the market for the produce, with but little reference to the cost of providing the various agents employed in raising it; and it therefore is of the nature of a rent. And that part which the tenant retains, is to be regarded, even for short periods, as profits entering directly into the normal price of the produce; because the produce would not be raised unless it were expected to yield those profits.

[1] Petty's memorable statement of the law of rent (*Taxes and Contributions*, IV. 13) is so worded as to apply to all forms of tenure and to all stages of civilization:—"Suppose a man could with his own hands plant a certain scope of Land with Corn, that is, could Digg, or Plough; Harrow, Weed, Reap, Carry home, Thresh, and Winnow, so much as the Husbandry of this Land requires; and had withal Seed wherewith to sow the same. I say, that when this man hath subducted his seed out of the proceed of his Harvest, and also what himself hath both eaten and given to others in exchange for Clothes, and other Natural necessaries; that the Remainder of Corn, is the natural and true Rent of the Land for that year; and the *medium* of seven years, or rather of so many years as make up the Cycle, within which Dearths and Plenties make their revolution, doth give the ordinary Rent of the Land in Corn."

The more fully therefore the distinctively English features of land tenure are developed, the more nearly is it true that the line of division between the tenant's and the landlord's share coincides with the deepest and most important line of cleavage in economic theory.[1] This fact perhaps more than any other was the cause of the ascendancy of English economic theory early in this century; it helped English economists to pioneer the way so far ahead, that even in our own generation, when as much intellectual activity has been devoted to economic studies in other countries as in England, nearly all the new constructive ideas are found to be but developments of others which were latent in the older English work.

The fact itself appears accidental: but perhaps it was not. For this particular line of cleavage involves less friction, less waste of time and trouble in checks and counter checks than any other. It may be doubted whether the so-called English system will endure. It has great disadvantages, and it may not be found the best in a future stage of civilization. But when we come to compare it with other systems, we shall see that it afforded great advantages to a country, which pioneered the way for the world in the development of free enterprise; and which therefore was impelled early to adopt all such changes as give freedom and vigour, elasticity and strength.

[1] In technical language it is the distinction between the quasi-rents which do not, and the profits which do, directly enter into the normal supply prices of produce for periods of moderate length.

CHAPTER X

LAND TENURE

VI, x, 1.

Early forms of Land tenure have generally been based on partnerships, controlled by tradition rather than by conscious contract. The so-called landlord is generally the sleeping partner,

§ 1. In early times, and in some backward countries even in our own age, all rights to property depend on general understandings rather than on precise laws and documents. In so far as these understandings can be reduced to definite terms and expressed in the language of modern business, they are generally to the following effect:—The ownership of land is vested, not in an individual, but in a firm of which one member or group of members is the sleeping partner, while another member or group of members (it may be a whole family) is the working partner.[1]

The sleeping partner is sometimes the ruler of the State, sometimes he is an individual who inherits what was once the duty of collecting the payments due to this ruler from the cultivators of a certain part of the soil; but what, in the course of silent time, has become a right of ownership, more or less definite, more or less absolute. If, as is generally the case, he retains the duty to make certain payments to the ruler of the State, the partnership may be regarded as containing three members, of whom two are sleeping partners.[2]

and his share of the produce is not a true rent.

The sleeping partner, or one of them, is generally called the proprietor, or landholder or landlord, or even the landowner. But this is an incorrect way of speaking, when he is restrained by law, or by custom which has nearly the force of law, from turning the culti-

[1] The sleeping partner may be a village community; but recent investigations, especially those of Mr. Seebohm, have given cause for believing that the communities were not often "free" and ultimate owners of the land. For a summary of the controversy as to the part which the village community has played in the history of England the reader is referred to the first chapter of Ashley's *Economic History*. Mention has already been made of the ways in which primitive forms of divided ownership of the land hindered progress, I. ii. 2.

[2] The firm may be further enlarged by the introduction of an intermediary who collects payments from a number of cultivators, and after deducting a certain share, hands them over to the head of the firm. He is not a middleman in the sense in which the word is used ordinarily in England; that is, he is not a sub-contractor, liable to be dismissed at the end of a definite period for which he has contracted to collect the payments. He is a partner in the firm, having rights in the land as real as those of the head partner, though, it may be, of inferior value. The case may be even more complex than this. There may be many intermediate holders between the actual cultivators and the person who holds direct from the State. The actual cultivators also vary greatly in the character of their interests; some having a right to sit at fixed rents and to be altogether exempt from enhancement, some to sit at rents which are enhanceable only under certain prescribed conditions, some being mere tenants from year to year.

vator out of the holding by an arbitrary increase of the payments exacted from him or by any other means. In that case the property in the land vests not in him alone, but in the whole of the firm of which he is only the sleeping partner, the payment made by the working partner is not a rent at all, but is that fixed sum, or that part of the gross proceeds, as the case may be, which the constitution of the firm binds him to pay; and, in so far as the custom or law which regulates these payments is fixed and unalterable, the theory of rent has but little direct application.

But custom is much more plastic than at first appears, as is shown even by recent English history.

§ 2. But in fact the payments and dues, which custom is supposed to stereotype, nearly always contain elements which are incapable of precise definition; while the accounts of them handed down by tradition are embodied in loose and vague impressions, or at best are expressed in words that make no attempt at scientific exactness.[1]

We can watch the influence of this vagueness in the agreements between landlord and tenant even in modern England; for they have always been interpreted by the aid of customs, which have ever been imperceptibly growing and dwindling again, to meet the changing exigencies of successive generations. We change our customs more quickly than our forefathers did, and we are more conscious of our changes and more willing to convert our customs into legal enactments, and to make them uniform.[2]

Even now the adjustment of rents to the changes in the letting value of the land is partly tacit and almost unconscious.

At the present day, in spite of minute legislation and carefully drawn agreements, there remains a wide margin of uncertainty as to the amount of capital which the landlord will from time to time invest in maintaining and extending the farm buildings and other improvements. It is in these matters, quite as much as in his direct money relations with the tenant, that the generous and liberal landlord shows himself; and, what is specially important for the general argument of this chapter, alterations in the real net rent required of the tenant are as often made by a quiet readjustment of the shares of the expenses of working the farm that are borne by

[1] Prof. Maitland in the article on *Court Rolls* in the *Dictionary of Political Economy* observes that "we shall never know how far the tenure of the mediæval tenant was precarious until these documents have been examined."

[2] Thus Mr. Pusey's Committee of the House of Commons in 1848 reported, "That different usages have long prevailed in different counties and districts of the country, conferring a claim on an outgoing tenant for various operations of husbandry. . . . That these local usages are imported into leases or agreements, . . . unless the terms of the agreement expressly, or by implication, negative such a presumption. That in certain parts of the country a modern usage has sprung up, which confers a right on the outgoing tenant to be reimbursed certain expenses . . . other than those above referred to. . . . That this usage appears to have grown out of improved and spirited systems of farming, involving a large outlay of capital. . . . That these [new] usages have gradually grown into general acceptance in certain districts, until they have ultimately become recognized there as the custom of the country." Many of them are now enforced by law. See below, § 10.

VI, x, 3. the landlord and the tenant as by a change in the money rent. Thus corporate bodies and many large private landowners often let their tenants go on from year to year, without any attempt to make the money rents follow the changes in the real letting value of the land; and there are many farms which are not let on lease and yet the rent of which has nominally remained unchanged during the agricultural inflation which culminated in 1874, and during the depression which followed. But in the earlier period the farmer, who knew he was under-rented, could not put pressure on his landlord to lay out capital in drainage or new buildings or even in repairs, and had to humour him as regards the game and in other matters; while just now the landlord, who has a steady tenant, will do many things, that are not stipulated for in the agreement, in order to retain him. Thus, while the money rent has remained stationary, the real rent has changed.

Thus caution is needed when applying the Ricardian analysis to modern English land problems;

This fact is an important illustration of the general proposition, that the economic theory of rent, the Ricardian theory as it is sometimes called, does not apply to modern English land tenure without many corrections and limitations both as regards substance and form; and that a further extension of these corrections and limitations will make the theory applicable to all forms of Mediæval and Oriental land tenure, in which any sort of private ownership is recognized. The difference is only one of degree.

as well as to earlier systems.

§ 3. But the difference of degree is very great. This is partly because in primitive times and backward countries the sway of custom is more undisputed; partly because, in the absence of scientific history, shortlived man has little better means of ascertaining whether custom is quietly changing, than the fly, born to-day and dead to-morrow, has of watching the growth of the plant on which it rests. But the chief reason is that the conditions of partnership were expressed in terms which were seldom capable of exact definition and measurement.

For the terms of partnership in them were vague, elastic, and capable of unconscious modification in many ways.

For the share of the senior partner in the firm, or the landlord as we may for shortness call him, generally included (either with or without a right to a certain share of the produce) the right to claim certain labour services and dues, tolls and presents; and the amount which he obtained under each of those heads varied from time to time, from place to place, and from one landlord to another. Whenever payments of all kinds made by the cultivator left him a margin beyond the necessaries of life for him and his family, together with those comforts and luxuries which were established by custom, the landlord was likely to use his superior strength to raise the payments

in some form or other. If the chief payments were a certain share of the produce, he might increase that share: but, as that could seldom be done without an appearance of violence, he would be more likely to increase the number and weight of his minor imposts, or to insist that the land be more intensively cultivated, and a larger part of it be given to crops that cost much labour and are of great value. Thus changes went on, smoothly for the most part, silently and almost imperceptibly, like the hour-hand of a clock; but in the long run they were very thorough.[1]

The protective force of custom.

The protection which custom afforded to the tenant was not indeed unimportant even as regards these dues. For he always knew pretty well what demands he would have to meet at any particular time. The moral sense of all around him, high and low, protested against any attempt on the part of his landlord to make a sudden and violent increase in the payments and dues, the tolls and fines which were recognized as usual; and thus custom rounded off the edges of change.

It is moreover true that these vague and variable elements of rent were generally but a small part of the whole; and that in those not very rare cases in which the money rent remained fixed for very long periods together, the tenant had a kind of partnership in the soil, which he owed partly to the forbearance of his landlord if it happened that the true net value of the land had risen, but partly also to the constraining force of custom and public opinion. This force in some measure resembled the force which holds raindrops on the lower edge of a window frame: the repose is complete till the window is violently shaken, and then they fall together; and in like way the legal rights of the landlord which had long lain latent were sometimes brought suddenly into action in a period of great economic change.[2]

[1] Thus the value of a service of a certain number of days' work would depend partly on the promptness with which the labourer left his own hayfield when called to that of his landlord, and on the energy he put into his work. His own rights, such as that of cutting wood or turf, were elastic; and so were those of his landlord which bound him to allow flocks of pigeons to devour his crops unmolested, to grind his corn in the lord's mill, and to pay tolls levied on the lord's bridges and in his markets. Next, the fines or presents, or "abwabs" as they are called in India, which the tenant might be called on to pay, were more or less elastic, not only in their amounts but in the occasions on which they were levied. Under the Moguls the tenants in chief had often to pay a vast number of such imposts in addition to their nominally fixed share of the produce: and they passed these on, increased in weight and with additions of their own, to the inferior tenants. The British Government has not levied them itself; but it has not been able, in spite of many efforts, to protect the inferior tenants from them. For instance, in some parts of Orissa, Sir W. W. Hunter found that the tenants had to pay, besides their customary rent, 33 different cesses. They paid whenever one of their children married, they paid for leave to erect embankments, to grow sugar-cane, to attend the festival of Juggernaut, etc. (*Orissa*, I. 55-9.)

[2] In India at the present time we see very various forms of tenure existing side by side, sometimes under the same name and sometimes under different names. There

VI, x, 4. § 4. The question whether the payments made by the cultivator for the use of his land should be reckoned in money or in produce

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are places in which the raiyats and the superior holders own between them the property in the land subject to definite dues to Government, and where the raiyat is safe not only from being ejected, but also from being compelled by fear of violence to pay over to his superior holder more than that share of the producer's surplus, which custom strictly prescribes. In that case the payment which he makes is, as has already been said, simply the handing over to the other partner in the firm of that share of the receipts of the firm which under the unwritten deed of partnership belongs to him. It is not a rent at all. This form of tenure, however, exists only in those parts of Bengal in which there have been no great recent dislocations of the people, and in which the police are sufficiently active and upright to prevent the superior holders from tyrannizing over the inferior.

In the greater part of India the cultivator holds directly from the Government under a lease the terms of which can be revised at intervals. And the principle on which those leases are arranged, especially in the North-West and North-East, where new land is being settled, is to adjust the annual payments due for it to the probable Surplus Produce of the land, after deducting the cultivator's necessaries and his little luxuries, according to the customary standard of the place, and on the supposition that he cultivates with the energy and skill that are normal in that place. Thus as between man and man in the same place the charge is of the nature of economic rent. But, since unequal charges will be levied in two districts of equal fertility, of which one is cultivated by a vigorous and the other by a feeble population, its method of adjustment as between different districts is rather that of a tax, than a rent. For taxes are supposed to be apportioned to the net income which actually is earned, and rents to that which would be earned by an individual of normal ability: a successful trader will pay on ten times as large an actual income ten times as large a tax as his neighbour who lives in equally advantageous premises and pays equal rents.

The whole history of India records little of that quiet stability which has come over the rural parts of England since war, famine, and plague have ceased to visit us. Extensive movements seem to have been nearly always in progress, partly in consequence of the recurrence of famines (for, as the Statistical Atlas of India shows, there are very few districts which have not been visited at least once by a severe famine during this century); partly of the devastating wars which one set of conquerors after another has inflicted on the patient people; and partly of the rapidity with which the richest land reverts to a thick jungle. The land which has supported the largest population is that which, when deprived of its human inhabitants, most quickly provides shady harbours for wild beasts, for venomous snakes, and for malaria; these prevent the return of the refugees to their old homes, and cause them often to wander far before they settle. When land has been depopulated, those who have the control over it, whether the Government or private persons, offer very favourable terms in order to attract cultivators from elsewhere; this competition for tenants very much influences the relations of cultivators and superior holders for a long distance around them; and therefore, in addition to the changes of customary tenure, which, though impalpable at any time, have been always going on, there have been in almost every place many epochs in which the continuity even of the former custom has been broken and keen competition has reigned supreme.

These disturbing forces of war, famine, and plague were frequent in mediæval England, but their violence was less. And further, the rate of movement of nearly all changes in India has been greater than it would have been if the average period of a generation were as long as in the colder climate of England. Peace and prosperity therefore enable Indian populations to recover from their calamities more quickly; and the traditions which each generation holds of the doings of its fathers and grandfathers run back for a shorter time, so that usages of comparatively recent growth are more easily believed to have the sanction of antiquity. Change can move faster without being recognized as change.

Modern analysis may be applied to the contemporary conditions of land tenure in India and other Oriental countries, the evidence as to which we can examine and cross-examine, in such a way as to throw light on the obscure and fragmentary records of mediæval land tenures, which may indeed be examined, but cannot be cross-examined. There is of course great danger in applying modern methods to primitive conditions: it is easier to misapply them than to apply them rightly. But the assertion, which has been sometimes made, that they cannot be usefully applied at all appears to be based on a conception of the aims, methods and results of analysis, which has little in common with that presented in this, and other modern treatises. See *A Reply* in the *Economic Journal*, Sept. 1892.

is of growing interest with reference to both India and England. But we may pass it by for the present and consider the more fundamental distinction between the "English" system of rental and that of holding land on "shares," as it is called in the New World, or the "Metayer"[1] system as it is called in the Old.

VI, x, 4.

Metayage or rental by shares

In a great part of Latin Europe the land is divided into holdings, which the tenant cultivates by the labour of himself and his family, and sometimes, though rarely, that of a few hired labourers, and for which the landlord supplies buildings, cattle and, sometimes even, farm implements. In America there are few agricultural tenancies of any kind, but two-thirds of those few are small holdings, let out to white men of the poorer class, or to freed negroes, on some plan by which labour and capital share in the produce.[2]

has many forms in Europe and America.

This plan enables a man who has next to no capital of his own to obtain the use of it at a lower charge than he could in any other way, and to have more freedom and responsibility than he would as a hired labourer; and thus the plan has many of the advantages of the three modern systems of co-operation, profit sharing, and payment by piece-work.[3] But though the metayer has more freedom than the hired labourer he has less than the English farmer. His landlord has to spend much time and trouble, either of his own or of a paid agent, in keeping the tenant to his work; and he must charge for these a large sum, which, though going by another name, is really earnings of management. For, when the cultivator has to give to his landlord half of the returns to each dose of capital and labour that he applies to the land, it will not be to his interest to apply any doses the total return to which is less than twice enough

It offers to the man without capital some of the advantages of co-operative production. But it involves much friction.

If the control of the landlord is slight the cultivation is poor;

[1] The term Metayer applies properly only to cases in which the landlord's share of the produce is one-half; but it is usually applied to all arrangements of this kind whatever the landlord's share be. It must be distinguished from the Stock lease system in which the landlord provided part at least of the stock, but the tenant managed the farm entirely, at his own risk subject to a fixed annual payment to the landlord for land and stock. In mediæval England this system was much used, and the Metayer system appears not to have been unknown. (See Rogers, *Six Centuries of Work and Wages*, ch. x.)

[2] In 1880 74 per cent. of the farms of the United States were cultivated by their owners, 18 per cent., or more than two-thirds of the remainder, were rented for a share of the produce, and only 8 per cent. were held on the English system. The largest proportion of farms that were cultivated by persons other than their owners were in the Southern States. In some cases the landowner—the farmer as he is called there—supplies not only horses and mules, but their feed; and in that case the cultivator—who in France would be called not a Metayer but a Maître Valet—is almost in the position of a hired labourer paid by a share of what he gets; as is for instance a hired fisherman whose pay is the value of a part of the catch. The tenant's share varies from one-third, where the land is rich and the crops such as to require little labour, to four-fifths, where there is much labour and the landlord supplies little capital. There is much to be gained from a study of the many various plans on which the share contract is based.

[3] The relations between publisher and author on the "half-profits" system resemble in many ways those between landlord and metayer.

VI, x, 4. to reward him. If, then, he is free to cultivate as he chooses, he will cultivate far less intensively than on the English plan; he will apply only so much capital and labour as will give him returns more than twice enough to repay himself: so that his landlord will get a smaller share even of those returns than he would have on the plan of a fixed payment.[1]

This is the case in many parts of Europe, in which the tenant has practical fixity of tenure; and then it is only by constant interference that the landlord can keep up the amount of labour he puts on his farm, and keep down the use he makes of the farm cattle for outside work, the fruits of which he does not share with his landlord.

but if it is effective the results may not be very different from those on the English plan.

But even in the most stationary districts the amount and quality of the stock which custom requires the landlord to provide are being constantly, though imperceptibly, modified to suit the changing relations of demand and supply. And if the tenant has no fixity of tenure, the landlord can deliberately and freely arrange the amount of capital and labour supplied by the tenant and the amount of capital supplied by himself to suit the exigencies of each special case.[2]

[1] This can be most clearly seen by aid of diagrams of the same kind as those used in IV. III. A *tenant's-share curve* would be drawn standing one-half (or one-third or two-thirds) as high above *OD* as *AC* does; the area below that curve would represent the tenant's share, that above the landlord's. *OH* being, as before, the return required to remunerate the tenant for one dose; he will, if left to his own devices, not carry cultivation beyond the point at which the tenant's-share curve cuts *HC*: and the landlord's will therefore be a less proportion of the returns to a slighter cultivation than under the English plan. Diagrams of this kind may be used to illustrate the way in which Ricardo's analysis of the causes that govern the Producer's Surplus from land, apply to systems of tenure other than the English. A little further change will adapt them to such customs as those found in Persia, where land itself is of small value; and "the harvest is divided into five parts, which are apportioned as follows, one part to each: 1, land; 2, water for irrigation, etc.; 3, seed; 4, labour; 5, bullocks. The landlord generally owns two, so he gets two-fifths of the harvest."

[2] This is already done in America, and in many parts of France; and some good judges think that the practice may be extended largely, and infuse new life into what a little while ago was regarded as the decaying system of Metayage. If worked out thoroughly, it will result in the cultivation being carried just about as far and affording the landlord the same income as he would have on the English plan for equally fertile and well-situated land equipped with the same capital, and in a place in which the normal ability and enterprise of candidates for farms is the same.

On the elasticity of Metayage in France see an article by Higgs and Lambelin in the *Economic Journal*, March 1894; and Leroy-Beaulieu, *Répartition des Richesses*, ch. IV.

Starting as in the last note, let the Circulating capital supplied by the landlord be represented by the distance *OK* marked off along *OD*. Then, if the landlord controls the amount *OK* freely and in his own interest, and can bargain with his tenant as to the amount of labour he applies, it can be proved geometrically that he will so adjust it as to force the tenant to cultivate the land just as intensively as he would under the English tenure; and his share will then be the same as under it. If he cannot modify the amount *OK*, but can still control the amount of the tenant's labour, then with certain shapes of the produce curve, the cultivation will be more intensive than it would be on the English plan; but the landlord's share will be somewhat less. This paradoxical result has some scientific interest, but little practical importance.

It is obvious then that the advantages of the metayer system are considerable when the holdings are very small, the tenants poor, and the landlords not averse to taking much trouble about small things: but that it is not suitable for holdings large enough to give scope to the enterprise of an able and responsible tenant. It is commonly associated with the system of peasant proprietorship; and we may consider that next. VI, x, 5.

§ 5. The position of a peasant proprietor has great attractions. He is free to do what he likes, he is not worried by the interference of a landlord, and the anxiety lest another should reap the fruits of his work and self-denial. His feeling of ownership gives him self-respect, and stability of character, and makes him provident and temperate in his habits. He is scarcely ever idle, and seldom regards his work as mere drudgery; it is all for the land that he loves so well.

The peasant proprietor has many virtues and many sources of happiness;

"The magic of property turns sand into gold," said Arthur Young. It undoubtedly has done so in many cases in which the proprietors have been men of exceptional energy. But such men might perhaps have done as well or better if their horizon had not been limited to the narrow hopes of a peasant proprietor. For indeed there is another side to the picture. "Land," we are told, "is the best savings-bank for the working man." Sometimes it is the second best. But the very best is the energy of himself and his children; and the peasant proprietors are so intent on their land that they often care for little else. Many even of the richest of them stint the food of themselves and their families: they pride themselves on the respectability of their houses and furniture; but they live in their kitchens for economy, and are practically worse housed and far worse fed than the better class of English cottagers. And the poorest of them work hard during very long hours; but they do not get through much work, because they feed themselves worse than the poorest English labourers. They do not understand that wealth is useful only as the means towards a real income of happiness; they sacrifice the end to the means.[1]

but he is wastefully penurious, and is an industrious but inefficient worker.

And it must be recollected that the English labourers represent the failure rather than the success of the English system. They are the descendants of those who for many successive generations

There are some well-to-do French and

[1] The term "peasant proprietor" is a very vague one: it includes many who by thrifty marriages have collected into one hand the results of several generations of hard work and patient saving; and in France some of these were able to lend freely to the Government after the great war with Germany. But the savings of the ordinary peasant are on a very small scale; and in three cases out of four his land is starved for want of capital: he may have a little money hoarded or invested, but no good grounds have been shown for believing that he often has much.

VI, x, 6.

German peasants, but against them must be set the many rich men in the Old World and the New who are descended from English labourers.

have not availed themselves of the opportunities by which their abler and more adventurous neighbours were rising to leading posts at home, and, what is far more important, were acquiring the fee simple of a great part of the surface of the globe. Of the causes which have contributed to make the English race the chief owners of the New World, the most important is that bold enterprise which has made a man, who is rich enough to be a peasant proprietor, generally refuse to be content with the humdrum life and the narrow income of a peasant. And among the causes which have fostered this enterprise, none is more important than the absence of temptations to wait for a petty inheritance, and to marry for the sake of property rather than in the free exercise of individual choice—temptations which have often dulled the energy of youth in places in which peasant properties have predominated.

The American farmer.

It is partly in consequence of the absence of these temptations that the "farmers" of America, though they are men of the working class cultivating their own land with their own hands, do not resemble "peasant proprietors." They invest their income freely and wisely in developing the energies of themselves and their children; and these energies constitute the chief part of their capital, for their land generally is as yet of but little value. Their minds are always active, and though many of them have little technical knowledge of agriculture, their acuteness and versatility enable them to find out almost unerringly the best solution of the problem immediately before them.

American methods of cultivation.

That problem is generally to obtain a produce large in proportion to the labour spent on it, though small in proportion to the abundant land at their disposal. In some parts of America, however, in which land is beginning to get a scarcity value, and in which the immediate neighbourhood of good markets is making an intensive cultivation profitable, the methods of farming and of tenure are rearranging themselves on the English model. And within the last few years there have been signs of a tendency on the part of native Americans to hand over to persons of recent European origin the farms of the West, as they have already done the farms of the East, and as they did long ago the textile industries.

The English system though somewhat harsh gives great power.

§ 6. Let us then turn to that English system of tenure. It is faulty and harsh in many respects; but it stimulated and economized the enterprise and energy, which, aided by England's geographical advantages and freedom from devastating wars, gave her the leadership of the world in the arts of manufacture and colonization and, though in a less marked degree, in agriculture. England has learnt

lessons in agriculture from many countries and especially the Netherlands; but on the whole she has taught far more than she has learnt. And there is now no country except the Netherlands which can compare with her in the amount of produce per acre of fertile land; and no country in Europe which obtains nearly so high returns in proportion to the labour expended in getting them.[1]

For it enables the landlord to supply that part of the capital for which he can be easily and effectively responsible;

The chief merit of the system is that it enables the landlord to keep in his own hands the responsibility for that part and only that part of the property which he can look after with but little trouble to himself, and little vexation to his tenant; and the investment of which, though requiring both enterprise and judgment, does not demand constant supervision of minor details. His part consists of land, buildings and permanent improvements, and averages in England five times that which the farmer has to supply himself; and he is willing to supply his part in the enterprise with this great capital at a net rent which seldom gives interest at as much as three per cent. on its cost. There is no other business in which a man can borrow what capital he wants at so low a rate, or can often borrow so large a part of his capital at any rate at all. The metayer indeed may be said to borrow an even larger share, but at a much higher rate.[2]

and it gives considerable freedom to the forces of selection.

The second merit of the English system, which partly follows from the first, is that it gives the landlord considerable freedom in the selection of an able and responsible tenant. So far as the management of land, as opposed to its ownership, goes, the accident of birth counts for less in England than in any other country of Europe. But we have already seen that even in modern England the accident of birth counts for a good deal in the access to posts of command in all kinds of business, to the learned professions and even to skilled manual trades. And it counts for somewhat more in English agriculture: for the good and bad qualities of landlords

[1] It would seem that England gets more produce per acre of fertile land than even the Netherlands, though there is some doubt about it. The Netherlands have led the way for England in more paths of industrial enterprise than any other country has; and this enterprise has diffused itself from their thickly scattered towns over the whole land. But there is error in the common opinion that they support as dense a population as England does, and yet export on the balance a great deal of agricultural produce. For Belgium imports a great part of her food; and even Holland imports as much food as she exports, though her non-agricultural population is small. In France, farm crops and even potatoes are on the average only about half as heavy as in England proper; and France has only about half the weight of cattle and sheep in proportion to her area. On the other hand, the small cultivators of France excel in poultry and fruit and other light branches of production for which her superb climate is well suited.

[2] For long periods the landlord may be regarded as an active partner and the predominant partner in the business: for short periods his place is rather that of the sleeping partner. On the part played by his enterprise compare the Duke of Argyll's *Unseen Foundations of Society*, especially p. 374.

VI, x, 7. combine to prevent their selecting tenants on strictly commercial principles, and they do not very often go far afield for a new tenant.[1]

Improvements in agriculture come slowly.

§ 7. The number of people who have the opportunity of making a step forward in the arts of agriculture is very great. And since the different branches of agriculture differ from one another in general character less than do those of manufacture, it might have been expected that new ideas in it would have followed one another quickly and have been speedily diffused. But on the contrary progress has been slow. For the most enterprising agriculturists drift towards the town; those who stay behind live more or less isolated lives; and, as a result of natural selection and education, their minds have always been more staid than those of townsmen, and less ready to suggest or even to follow new paths. And further, though a manufacturer is nearly always safe in copying a plan that has worked well with his neighbour in the same trade, a farmer is not: for every farm has slight peculiarities of its own, so that the blind adoption of a plan, that has worked well close by, is likely to fail; and its failure encourages others in the belief that old and tried ways are the best.

The difficulty of keeping exact farming accounts.

Again, the variety in agricultural detail makes the proper keeping of farming accounts very difficult. There are so many joint products and so many by-products, so many complex and shifting relations of debtor and creditor between the several crops and methods of feeding, that an ordinary farmer, even if he were as fond of accounts as he is in fact averse to them, would have great difficulty in ascertaining, otherwise than by a semi-instinctive guess, what is the price that will just pay him to raise a certain amount of extra produce. He may know its prime cost with fair certainty, but he seldom knows its true total cost; and this increases the difficulty of reading quickly the teachings of experience and making progress by their aid.[2]

[1] There is still (1907) considerable difference of opinion as to the extent to which the habits of the landlords combined with the existing system of tenure hinder the formation of new small holdings, which might provide an intelligent labourer with an opportunity for starting an independent business of his own, as easily as the artisan can start a retail shop and repairing business in metal or other goods.

[2] The difficulty is even greater in small holdings. For the capitalist farmer does at all events measure the prime cost in terms of money. But the cultivator working with his own hands often puts into his land as much work as he feels able to do, without estimating carefully its money value in relation to its product.

Although peasant proprietors resemble the heads of other small businesses in their willingness to work harder than those whom they hire and for less reward; yet they differ from the small masters in manufacture in this, that they often do not hire extra labour even when it would pay them well to do so. If all that they and their family can do for their land is less than enough for it, it is generally under-cultivated: if more, it is often cultivated beyond the remunerative limit. It is a common rule that those who give the time which is free from their main occupation to some other industry, often regard their earnings in this last, however low, as an extra gain;

And there is another difference between the mode of action of competition in agriculture and in manufacture. If one manufacturer is unenterprising, others may be able to step into the opening which he leaves vacant: but when one landowner does not develop the resources of his land in the best way, others cannot make up for the deficiency without calling into play the tendency to diminishing return; so that his want of wisdom and enterprise makes the (marginal) supply price a little higher than it otherwise would be.[1] It is however true that the difference between the two cases is only one of degree; since the growth of any branch of manufacture may be retarded perceptibly by any falling-off in the ability and enterprise of the leading firms engaged in it. The chief agricultural improvements have been made by landlords who have themselves been townsmen or at least have associated a good deal with townsmen, and by manufacturers in trades subsidiary to agriculture.[2]

VI, x, 8.

Want of ability on the part of one undertaker is not compensated by great ability on the part of others, as it is in manufactures.

§ 8. Though nature yields generally a less than proportionate return to an increased amount of labour of a given efficiency; man's part conforms generally to the law of increasing return (*i.e.* it increases in aggregate efficiency more than in proportion to the number of workers), in agriculture as well as in manufacture.[3] But yet the economies of production on a large scale are not quite similar in the two cases.

Man's part in agriculture conforms to the law of increasing return.

Firstly, agriculture must be spread over the broad land: raw material can be brought to the manufacturer for him to work on; but the agriculturist must seek his work. Again, the workers on the land must adapt their work to the seasons, and can seldom confine themselves entirely to one class of work; and in consequence agriculture, even under the English system, cannot move fast in the direction of the methods of manufacture.

Agriculture cannot be a localized nor a highly specialized industry;

But yet there are considerable forces tending to push it in that direction. The progress of invention is constantly increasing the number of serviceable, but expensive machines, for most of which a small farmer can find employment during only a very short time. He may hire some of them; but there are many the use of which he can get only by co-operation with his neighbours; and the uncer-

but there are forces tending to move it towards the methods of manufacture.

and they sometimes even work below what would be a starvation wage to those who depend on that industry for support. This is especially true when the side-industry is that of cultivating, partly for the pleasure of doing it, a small plot of land with imperfect appliances.

[1] See VI. II. 5, and the references given there.

[2] Prothero's *English Farming*, ch. VI. gives some instances of prolonged resistance to changes, and adds that an Act had to be passed in England as late as 1634 " agaynst plowynge by the taile."

[3] See IV. III. 5, 6.

VI, x, 8. tainties of the weather prevent this plan from working very smoothly in practice.[1]

It requires a constantly increasing knowledge.

Again, the farmer must go beyond the results of his own and his father's experience in order to keep abreast of the changes of the day. He should be able to follow the movements of agricultural science and practice closely enough to see their chief practical applications to his own farm. To do all this properly requires a trained and versatile mind; and a farmer who has these qualities could find time to direct the general course of the management of several hundred, or even of several thousand acres; and the mere superintendence of his men's work in matters of detail is not a task fitting for him. The work which he ought to do is as difficult as that of a large manufacturer, who would not spend his own strength on minute supervision which he can easily hire subordinates to do. A farmer, who can do this higher work, must be wasting his strength on work that is beneath him, unless he employs many gangs of workmen each of them under a responsible foreman. But there are not many farms which give scope for this, and there is therefore very little inducement for really able men to enter the business of farming; the best enterprise and ability of the country generally avoid agriculture and go to trades in which there is room for a man of first-rate ability to do nothing but high class work, to do a great deal of it, and therefore to get high earnings of management.[2]

The economies of rather small farms in the work of which the

If it be assumed, as is the modern fashion, that the farmer is not to work habitually with his men and to encourage them by his presence, it seems best for the economy of production that farms should be as large as is practicable under the existing conditions of land tenure; so as to give room for the use of highly specialized

[1] Horse-power is dearer relatively to both steam-power and hand-power in England than in most other countries. England has taken the lead in the improvement of field steam machinery. The cheapness of horse-power tells generally on the side of moderate sized farms *versus* very small ones; but the cheapness of steam-power and "motor" power obtained from petrol, etc., tells on the side of very large farms, except in so far as the use of field steam machinery can be hired economically and at convenient times.

[2] The experiment of working farms on a very large scale is difficult and expensive, because it requires farm buildings and means of communication specially adapted to it; and it may have to overcome a good deal of resistance from custom and sentiment not altogether of an unhealthy kind. The risk also would be great; for in such cases those who pioneer often fail, though their route when well trodden may be found to be the easiest and best.

Our knowledge on many disputed points would be much increased and valuable guidance gained for the future if some private persons, or joint-stock companies, or co-operative associations, would make a few careful experiments of what have been called "Factory farms." On this plan there would be a central set of buildings (there might be more than one) from which roads and even light tramways extended in all directions. In these buildings the recognized principles of factory management would be applied, machinery would be specialized and economized, waste of material would be avoided, by-products would be utilized, and above all the best skill and managing power would be employed, but only for its proper work.

machines and for the exercise of great ability on the part of the farmer. But if a farm is not very large, and if, as is often the case, the farmer has no greater ability and activity of mind than is commonly to be found among the better class of working foremen in manufactures; then it would be best for others, and in the long run for himself, that he should return to the old plan of working among his men. Perhaps also his wife might return to some of those lighter tasks in and near the farmhouse which tradition ascribes to her. They require discretion and judgment, they are not inconsistent with education and culture; and combined with it they would raise and not lower the tone of her life, and her real claims to a good social position. There is some reason for thinking that the stern action of the principle of natural selection is now displacing those farmers, who have not the faculty to do difficult head-work, and yet decline to do hand-work. Their places are being taken by men of more than average natural ability who, with the help of modern education, are rising from the ranks of labourers; who are quite able to manage the ordinary routine work of a model farm; and who are giving to it a new life and spirit by calling their men to come and work, instead of telling them to go and work. Very large farms being left out of view, it is with rather small farms worked on these principles that the immediate future of English agriculture seems to lie. Small holdings have great advantages wherever so much care has to be given to individual plants, that machinery is out of place. But modern applications of scientific methods are giving an increasing importance to that economy of technical skill which can be attained in a large nursery for choice flowers and fruits, with several highly paid assistants.

VI, x, 9.

farmer and his wife take some share.

§ 9. We may next consider how far landlords will in their own interest adjust the size of holdings to the real needs of the people. Small holdings often require more expensive buildings, roads and fences, and involve greater trouble and incidental expenses of management to the landlord in proportion to their acreage than do large holdings; and while a large farmer who has some rich land can turn poor soils to good account, small holdings will not flourish generally except on good soil.[1] Their gross rental per acre must therefore always be at a higher rate than that of large farms. But

The gross rent of small holdings must be high relatively to their acreage.

[1] The interpretation of this term varies with local conditions and individual wants. On permanent pasture near a town or an industrial district the advantages of small holdings are perhaps at their maximum, and the disadvantages at their minimum. For small arable holdings the land should not be light, but strong, and the richer the better; and this is especially the case with holdings so small as to make much use of the spade. The small cultivator can often pay his rent most easily where the land is hilly and broken, because there he loses but little from his want of command of machinery.

VI, x, 9. it is contended that, especially when land is heavily burdened by settlements, landlords are unwilling to incur the expense of subdividing farms, unless they see their way to rents for small holdings that will give them, in addition to high profits on their outlay, a heavy insurance fund against the chance of having to throw the holdings together again; and that the rental for small holdings, and especially for those of only a few acres, is extravagantly high in many parts of the country. Sometimes the prejudices of the landlord and his desire for undisputed authority make him positively refuse to sell or let land to persons who are not in harmony with him on social, political or religious questions. It seems certain that evils of this kind have always been confined to a few districts, and that they are rapidly diminishing, but they rightly attract much attention; for there is a public need in every district for small holdings, as well as large; for allotments and large gardens; and generally for holdings so small that they can be worked by people who have some other occupation.[1]

But it is sometimes at a scarcity value; and that is contrary to the public interest.

There should be no artificial hindrances to peasants' properties.

And lastly though peasant proprietorship, as a system, is unsuited to the economic conditions of England, to her soil, her climate, and the temper of her people, yet there are a few peasant proprietors in England who are perfectly happy in this condition; and there are a few others who would buy small plots of land and would live happily on them, if they could get just what they wanted where they wanted it. Their temper is such that they do not mind working hard and living sparely, provided they need call no one master; they love quiet and dislike excitement; and they have a great capacity for growing fond of land. Reasonable opportunity should be given to such people to invest their savings in small plots of land, on which they may raise suitable crops with their own hands; and at the very least the present grievous legal charges on the transfer of small plots should be diminished.

[1] They increase the number of people who are working in the open air with their heads and their hands: they give to the agricultural labourer a stepping-stone upwards, prevent him from being compelled to leave agriculture to find some scope for his ambition, and thus check the great evil of the continued flow of the ablest and bravest farm lads to the towns. They break the monotony of existence, they give a healthy change from indoor life, they offer scope for variety of character and for the play of fancy and imagination in the arrangement of individual life; they afford a counter attraction to the grosser and baser pleasures; they often enable a family to hold together that would otherwise have to separate; under favourable conditions they improve considerably the material condition of the worker; and they diminish the fretting as well as the positive loss caused by the inevitable interruptions of their ordinary work.

The evidence before the Committee on small holdings, 1906 [Cd. 3278] discusses very fully the advantages and disadvantages of ownership for small holders; with apparently a balance of opinion against ownership.

In 1904 there were in Great Britain 111,000 holdings between 1 and 5 acres; 232,000 between 5 and 50 acres; 150,000 between 50 and 300; and 18,000 above 300 acres. See *Ib.* Appendix II.

Co-operation might seem likely to flourish in agriculture and to combine the economies of production on a large scale with many of the joys and the social gains of small properties. It requires habits of mutual trust and confidence; and unfortunately the bravest and the boldest, and therefore the most trustful, of the countrymen have always moved to the towns, and agriculturists are a suspicious race. But Denmark, Italy, Germany, and lastly Ireland have led the way in a movement which seems full of promise for organized co-operation in the handling of dairy produce, in the making of butter and cheese; in buying farmers' requisites and in selling farmers' produce: and Britain is following in their wake. The movement is however of limited scope: it scarcely touches work in the field itself.

Co-operation has great opportunities and increasing prospects in agriculture.

As co-operation might combine more of the advantages of all systems of tenure, so the cottier system of Ireland often combined the disadvantages of all; but its worst evils and their causes have almost disappeared and the economic elements of the problem are just now overshadowed by the political. We must therefore pass it by.[1]

§ **10.** The failures of the English system of land tenure in Ireland have brought into clear relief difficulties which are inherent in it, but which have been kept in the background in England by the conformity of the system to the business habits and the character of the people. The chief of these difficulties arise from the fact that while the system is competitive in its essence, the conditions of agriculture even in England offer a strong resistance to the full action of free competition. To begin with, there are special difficulties in ascertaining the facts on which that action must be based. We have just noticed the difficulty of keeping exact farming accounts: to this must be added that a farmer's calculations as to the rent which it is worth his while to undertake to pay, are further hampered by the difficulty of deciding what is a normal harvest and a normal level of prices. For good and bad seasons come so much

The English system of tenure is competitive, but competition does not act easily in agriculture.

Difficulty of deciding what are normal prices and harvests.

[1] The Ricardian theory of rent ought to not bear the greater part of the blame that has been commonly thrown on it, for those mistakes which English legislators made during the first half of this century in trying to force the English system of land tenure on India and Ireland. The theory concerns itself with the causes that determine the amount of the Producer's surplus from land at any time; and no great harm was done when this surplus was regarded as the landlord's share, in a treatise written for the use of Englishmen in England. It was an error in jurisprudence and not in economics that caused our legislators to offer to the Bengal tax-collector and Irish landlord facilities for taking to themselves the whole property of a cultivating firm, which consisted of tenant and landlord in the case of Ireland, and in the case of Bengal, of the Government and tenants of various grades; for the tax-collector was in most cases not a true member of the firm, but only one of its servants. But wiser and juster notions are prevailing now in the Government of India as well as of Ireland.

VI, x, 10. in cycles that many years are required to afford a trustworthy average of them :[1] and in those many years the industrial environment is likely to have changed much; the local demand, the facilities for selling his own produce in distant markets and those which assist competitors from a distance to sell their produce in his local markets may all have changed.

Difficulty arising from local variations in the standard of normal farming skill and enterprise.

The landlord in determining what rent to accept is met by this difficulty and also by another, arising out of variations in the standards of ability among farmers in different parts of the country. The producer's surplus, or English rent, of a farm is that excess which its produce yields over its expenses of cultivation, including normal profits to the farmer: it being assumed that that farmer's ability and enterprise are such as are normal for farms of that class *in that place*. The difficulty in view is to decide whether these last words are to be interpreted broadly or narrowly.

Ethical and economic elements are here closely inter-mingled.

It is clear that if a farmer falls below the standard of ability of his own district, if his only forte is in driving hard bargains, if his gross produce is small and his net produce even smaller in proportion; in such a case the landlord acts in the interest of all when he hands over the farm to a more competent tenant, who will pay better wages, obtain a much higher net produce and pay a somewhat higher rent. On the other hand, when the local standard of normal ability and enterprise is low, it is not clearly right from an ethical point of view, nor is it clearly in the business interests of the landlord in the long run, that he should endeavour to take to himself a greater rent than can be paid by a farmer who reaches that standard; even though it could be obtained by importing a farmer from another district in which the standard is higher.[2]

The tenant's freedom to make and reap the fruits of improvements;

Closely related to this question is one as to the freedom the tenant should have to develop the natural capabilities of his land at his own risk, with the understanding that if he is successful he is to retain something more than mere normal profits on his enterprise. So far as minor improvements go, this difficulty is in a great measure met by long leases. These have done much for Scotland:

[1] Compare Tooke and Newmarch, *History of Prices*, Vol. VI. App. III.

[2] Difficulties of this kind are practically solved by compromises which experience has justified, and which are in accordance with the scientific interpretation of the term "normal." If a local tenant showed extraordinary ability, the landlord would be thought grasping who, by threatening to import a stranger, tried to extort a higher rent than the normal local farmer could make the land pay. On the other hand, a farm being once vacant, the landlord would be thought to act reasonably if he imported a stranger who would set a good model to the district, and who shared about equally with the landlord the extra net surplus due to his ability and skill, which, though not strictly speaking exceptional, were yet above the local standard. Compare the action of Settlement Officers in India with regard to equally good land cultivated by energetic and unenergetic races, noticed in the footnote on p. 533–4.

but they have disadvantages of their own. And as has been often observed, "the English tenant has always something of a lease even when he has no lease": and again, "there are traces of *métayage* even in tenures which are thoroughly English." When seasons and markets are favourable to the farmer, he pays his full rent and avoids making demands on the landlord that might set him thinking whether the rent ought not to be raised. When things go badly, the landlord, partly from sympathy and partly as a matter of business, makes temporary remissions of rent, and bears the expense of repairs, etc., which he would otherwise have left for the farmer. There may thus be much give and take between landlord and tenant without any change of nominal rent.[1]

VI, x, 10.

latent partnership between tenant and landlord.

Custom has always given to the English tenant some partial security for compensation for improvements made by him; and legislation has recently caught up custom, and even passed it. The tenant is not practically secure against the raising of his rent on account of increased yield of the soil due to improvements of a reasonable nature made by himself: and on leaving he can claim compensation for the unexhausted value of them, to be fixed by arbitration.[2]

Finally a word may be said as to private and public interests with regard to open spaces in towns. Wakefield and the American economists have taught us how a sparsely inhabited new district is enriched by the advent of every new settler. The converse truth is that a closely peopled district is impoverished by every one who adds a new building or raises an old one higher. The want of air and light, of peaceful repose out-of-doors for all ages and of healthy play for children, exhausts the energies of the best blood of England

Conflict between public and private interests in the matter of building on open spaces.

[1] Compare Nicholson, *Tenants' Gain not Landlords' Loss*, ch. x.

[2] The Agricultural Holdings Act of 1883 enforced customs which Mr. Pusey's committee eulogized, but did not propose to enforce. Many improvements are made partly at the expense of the landlord and partly at that of the tenant, the former supplying the materials, and the latter the labour. In other cases it is best that the landlord should be the real undertaker of the improvements, bearing the whole expense and risk, and realizing the whole gain. The Act of 1900 recognized this; and, partly for the sake of simplicity in working, it provided that compensation for some improvements can be claimed only if they have been made with the consent of the landlord. In the case of drainage notice of the tenant's wishes must be served on the landlord; so that he may have the opportunity of himself undertaking the risks and reaping a share of the accruing benefits. In reference to manuring, and some kinds of repairs, etc., the tenant may act without consulting the landlord, merely taking the risk that his outlay will not be regarded by the arbitrator as calling for compensation.

Under the Act of 1900 the arbitrator was to assign such compensation as would "represent fairly the value of the improvement to an incoming tenant," after deduction for any part of that value which might be due to evoking dormant "inherent capabilities of the soil." But this deduction was struck out by the Act of 1906; the interests of the landlord being regarded as sufficiently secured by the provisions requiring his consent in some of those cases, in which such dormant capabilities might be evoked; and by giving him an opportunity of taking the risks himself in the rest.

VI, x, 10. which is constantly flowing towards our large towns. By allowing vacant spaces to be built on recklessly we are committing a great blunder from a business point of view. For the sake of a little material wealth we are wasting those energies which are the factors of production of all wealth: we are sacrificing those ends towards which material wealth is only a means.[1]

[1] This matter is further discussed in Appendix G.

CHAPTER XI

GENERAL VIEW OF DISTRIBUTION

§ 1. THE argument of the preceding ten chapters may now be summarized. It falls far short of a complete solution of the problem before us: for that involves questions relating to foreign trade, to fluctuations of credit and employment, and to the influences of associated and collective action in its many forms. But yet it extends to the broad action of the most fundamental and permanent influences which govern distribution and exchange. In the summary at the end of Book V we traced a continuous thread running through and connecting the applications of the general theory of equilibrium of demand and supply to different periods of time; from those so short that cost of production could exercise no direct influence on value, to those so long that the supply of the appliances of production could be fairly well adjusted to the indirect demand for them, which is derived from the direct demand for the commodities which they produce. In the present Book we have been concerned with another thread of continuity, which lies transversely to the thread connecting different periods of time. It connects the various agents and appliances for production, material and human; and establishes a fundamental unity between them, in spite of their important differences of outward feature.

VI, XI, 1.

A provisional summary, supplementing that in V. XV. and tracing a thread of continuity transverse to the earlier one.

Firstly, wages and other earnings of effort have much in common with interest on capital. For there is a general correspondence between the causes that govern the supply prices of material and of personal capital: the motives which induce a man to accumulate personal capital *in* his son's education, are similar to those which control his accumulation of material capital *for* his son. There is a continuous transition from the father who works and waits in order that he may bequeath to his son a rich and firmly-established manufacturing or trading business, to one who works and waits in order to support his son while he is slowly acquiring a thorough medical education, and ultimately to buy for him a lucrative practice. Again, there is the same continuous transition from him to one who works and waits in order that his son may stay long at school; and may afterwards work for some time almost without

The causes that determine the normal supply prices of material and personal capital are very similar in general character,

pay while learning a skilled trade, instead of being forced to support himself early in an occupation, such as that of an errand-boy, which offers comparatively high wages to young lads, because it does not lead the way to a future advance.

in spite of important differences.

It is indeed true that the only persons, who, as society is now constituted, are very likely to invest much in developing the personal capital of a youth's abilities are his parents: and that many first-rate abilities go for ever uncultivated because no one, who can develop them, has had any special interest in doing so. This fact is very important practically, for its effects are cumulative. But it does not give rise to a fundamental difference between material and human agents of production: for it is analogous to the fact that much good land is poorly cultivated because those who would cultivate it well have not access to it.

Again, since human beings grow up slowly and are slowly worn out, and parents in choosing an occupation for their children must as a rule look forward a whole generation, changes in demand take a longer time to work out their full effects on supply in the case of human agents than of most kinds of material appliances for production; and a specially long period is required in the case of labour to give full play to the economic forces which tend to bring about a normal adjustment between demand and supply. Thus on the whole the *money* cost of any kind of labour to the employer corresponds in the long run fairly well to the *real* cost of producing that labour.[1]

Business men weigh the services of the different industrial classes; and thus give effect to the principle of substitution;

§ 2. The efficiency of human agents of production on the one hand, and that of material agents on the other, are weighed against one another and compared with their *money* costs; and each tends to be applied as far as it is more efficient than the other in proportion to its money cost. A chief function of business enterprise is to facilitate the free action of this great principle of substitution. Generally to the public benefit, but sometimes in opposition to it, business men are constantly comparing the services of machinery, and of labour, and again of unskilled and skilled labour, and of extra foremen and managers; they are constantly devising and experimenting with new arrangements which involve the use of different factors of production, and selecting those most profitable for themselves.[2]

The efficiency as compared with the cost of almost every class of labour, is thus continually being weighed in the balance in one

[1] Compare IV. v. vi. vii. and xii.; and VI. iv. v. and vii.
[2] Compare V. iii. 3; and VI. vii. 2.

or more branches of production against some other classes of labour: and each of these in its turn against others. This competition is primarily "vertical": it is a struggle for the field of employment between groups of labour belonging to different grades, but engaged in the same branch of production, and inclosed, as it were, between the same vertical walls. But meanwhile "horizontal" competition is always at work, and by simpler methods: for, firstly, there is great freedom of movement of adults from one business to another within each trade; and secondly, parents can generally introduce their children into almost any other trade of the same grade with their own in their neighbourhood. By means of this combined vertical and horizontal competition there is an effective and closely adjusted balance of payments to services as between labour in different grades; in spite of the fact that the labour in any one grade is mostly recruited even now from the children of those in the same grade.[1]

which is thorough in the long run.

The working of the principle of substitution is thus chiefly indirect. When two tanks containing fluid are joined by a pipe, the fluid, which is near the pipe in the tank with the higher level, will flow into the other, even though it be rather viscous; and thus the general levels of the tanks will tend to be brought together, though no fluid may flow from the further end of the one to the further end of the other; and if several tanks are connected by pipes, the fluid in all will tend to the same level, though some tanks have no direct connection with others. And similarly the principle of substitution is constantly tending by indirect routes to apportion earnings to efficiency between trades, and even between grades, which are not directly in contact with one another, and which appear at first sight to have no way of competing with one another.

But as regards the work of business men themselves substitution is less highly organized.

§ 3. There is no breach of continuity as we ascend from the unskilled labourer to the skilled, thence to the foreman, to the head of a department, to the general manager of a large business paid partly by a share of the profits, to the junior partner, and lastly to the head partner of a large private business: and in a joint-stock company there is even somewhat of an anti-climax when we pass from the directors to the ordinary shareholders, who undertake the chief ultimate risks of the business. Nevertheless business undertakers are to a certain extent a class apart.

For while it is through their conscious agency that the principle of substitution chiefly works in balancing one factor of production against another; with regard to them it has no other agency than

[1] Compare IV. VI. 7; and VI. V. 2.

VI, XI, 3. the indirect influence of their own competition. So it works blindly, or rather wastefully; it forces many to succumb who might have done excellent work if they had been favoured at first: and, in conjunction with the tendency to increasing return, it strengthens those who are strong, and hands over the businesses of the weak to those who have already obtained a partial monopoly.

But on the other hand there is also a constant increase in the forces which tend to break up old monopolies, and to offer to men, who have but little capital of their own, openings both for starting new businesses and for rising into posts of command in large public and private concerns; and these forces tend to put business ability in command of the capital required to give it scope.

Their work may be done more cheaply hereafter, but it is worth to society even now more than it costs.

On the whole the work of business management is done cheaply —not indeed as cheaply as it may be in the future when men's collective instincts, their sense of duty and their public spirit are more fully developed; when society exerts itself more to develop the latent faculties of those who are born in a humble station of life, and to diminish the secrecy of business; and when the more wasteful forms of speculation and of competition are held in check. But yet it is done so cheaply as to contribute to production more than the equivalent of its pay. For the business undertaker, like the skilled artisan, renders services which society needs, and which it would probably have to get done at a higher cost if he were not there to do them.

Contrasts between fluctuations of current profits and wages.

The similarity between the causes that determine the normal rewards of ordinary ability on the one hand, and of business power in command of capital on the other, does not extend to the fluctuations of their current earnings. For the employer stands as a buffer between the buyer of goods and all the various classes of labour by which they are made. He receives the whole price of the one and pays the whole price of the others. The fluctuations of his profits go with fluctuations of the prices of the things he sells, and are more extensive: while those of the wages of his employees come later and are less extensive. The earnings at any particular time of his capital and ability are sometimes large, but sometimes also a negative quantity: whereas those of the ability of his employees are never very large, and are never a negative quantity. The wage-receiver is likely to suffer much when out of work; but that is because he has no reserve, not because he is a wage-receiver.[1]

The income

That part of a man's income which he owes to the possession of extraordinary natural abilities is a free boon to him; and from an

[1] Compare V. II. 3, and VI. IV. 6, and VIII. 7–9.

abstract point of view bears some resemblance to the rent of other free gifts of nature, such as the inherent properties of land. But in reference to normal prices, it is to be classed rather with the profits derived by free settlers from the cultivation of new land, or again with the find of the pearl-fisher. The plot of one settler turns out better and that of another worse than was expected; the good find of one dive of the pearl-fisher compensates for many others that are fruitless: and the high income which one barrister, or engineer, or trader earns by his natural genius has to be counted with the comparative failures of many others; who perhaps appeared of no less promise when young and received as costly an education and start in life, but whose services to production were less than his in proportion to their cost. The ablest business men are generally those who get the highest profits, and at the same time do their work most cheaply; and it would be as wasteful if society were to give their work to inferior people who would undertake to do it more cheaply, as it would be to give a valuable diamond to be cut by a low waged but unskilled cutter.

derived from rare natural abilities.

§ 4. Returning to the point of view of the second Chapter of this Book, we may call to mind the double relation in which the various agents of production stand to one another. On the one hand they are often rivals for employment; any one that is more efficient than another in proportion to its cost tending to be substituted for it, and thus limiting the demand price for the other. And on the other hand they all constitute the field of employment for each other: there is no field of employment for any one, except in so far as it is provided by the others: the national dividend which is the joint product of all, and which increases with the supply of each of them, is also the sole source of demand for each of them.

The various agents of production are the sole source of employment for one another.

Thus an increase of material capital causes it to push its way into new uses; and though in so doing it may occasionally diminish the field of employment for manual labour in a few trades, yet on the whole it will very much increase the demand for manual labour and all other agents of production. For it will much increase the national dividend, which is the common source of the demand for all; and since by its increased competition for employment it will have forced down the rate of interest, therefore the joint product of a dose of capital and labour will now be divided more in favour of labour than before.

How an increase of capital enriches the field for the employment of labour.

This new demand for labour will partly take the form of the opening-out of new undertakings which hitherto could not have paid their way; while a new demand will come from the makers of

new and more expensive machinery. For when it is said that machinery is substituted for labour, this means that one class of labour combined with much waiting is substituted for another combined with less waiting: and for this reason alone, it would be impossible to substitute capital for labour in general, except indeed locally by the importation of capital from other places.

It remains true, however, that the chief benefit which an increase of capital confers upon labour is not by opening out to it new employments, but by increasing the joint product of land, labour and capital (or of land, labour and waiting), and by reducing the share of that product which any given amount of capital (or of waiting) can claim as its reward.

If any group of workers becomes more efficient its wages rise and other wages rise also: if it becomes more numerous its wages fall while other wages rise.

§ 5. In discussing the influence which a change in the supply of work of any one industrial group exerts on the field of employment for other kinds of labour, there was no need to raise the question whether the increase of work came from an increase in the numbers or in the efficiency of those in the group: for that question is of no direct concern to the others. In either case there is the same addition to the national dividend: in either case competition will compel them to force themselves to the same extent into uses in which their marginal utility is lower; and will thus lessen to the same extent the share of the joint product which they are able to claim in return for a given amount of work of a given kind.

But the question is of vital importance to the members of that group. For, if the change is an increase of one-tenth in their average efficiency, then each ten of them will have as high an aggregate income as each eleven of them would have if their numbers had increased by one-tenth, their efficiency remaining unchanged.[1]

This and other influences of the environment on wages take part in governing the net product of the worker of normal efficiency to which normal wages approximate.

This dependence of the wages of each group of workers on the numbers and efficiency of others is a special case of the general rule that the environment (or *Conjuncture*) plays a part at least co-ordinate with a man's energy and ability in governing that net product to which his wages ever approximate under the influence of competition.

The net product to which the normal wages of any group of workers approximate, must be estimated on the assumption that production has been pushed to that limit at which the output can be just marketed with normal profits, but not more: and it must

[1] Suppose, for instance, that an increase in the supply of work of the group by one-tenth forced them into work in which their marginal uses were lower, and thus lowered by a thirtieth their wages for any given amount of work; then, if the change came from an increase in their numbers, their average wages would fall by a thirtieth. But if it came from an increase in their efficiency, their wages would rise by about a sixteenth. (More exactly they would be $\frac{11}{10} \times \frac{29}{30} = 1\frac{19}{300}$ of what they were before.)

be estimated with reference to a worker of normal efficiency; whose VI, XI, 5.
additional output repays an employer of normal ability and normal good fortune and normal resources with normal profits, but not more. (Something must be added to or subtracted from this net product to find the normal wages of a worker whose efficiency is more or less than normal.) The time chosen must be one of normal prosperity; and when the supplies of different kinds of labour are relatively appropriate. For instance if the building trade is exceptionally depressed, or exceptionally prosperous: or if its development is checked by an inadequate supply of bricklayers or carpenters, while the supply of other classes of building operatives is superabundant, then the occasion is one which does not afford a convenient opportunity for estimating the relations of net product to normal wages of either bricklayers or carpenters.[1]

[1] As regards the relation between wages and the marginal net product of labour see VI. I. and II. and especially pp. 427-9 and 446-8: the matter is further discussed in VI. XIII. especially p. 588 n. As regards the need to seek a truly representative margin see V. VIII. 4, 5: where it is argued (p. 339 n.) that when that has been reached, the influence of the supply of any group of workers on the wages of others has already been reckoned: and that the influence which any one individual worker exerts on the general economic environment of the industries of a country is infinitesimal, and is not relevant to an estimate of his net product in relation to his wages. In V. XII. and Appendix H something is said of the hindrances to a rapid increase of output even where such an increase would theoretically yield great economies; and of the special care needed in the use of the term "margin" in regard to them.

CHAPTER XII

GENERAL INFLUENCES OF ECONOMIC PROGRESS

VI, xii, 1.

The field of employment for capital and labour

§ 1. The field of employment which any place offers for labour and capital depends, firstly, on its natural resources; secondly, on the power of turning them to good account, derived from its progress of knowledge and of social and industrial organization; and thirdly, on the access that it has to markets in which it can sell those things of which it has a superfluity. The importance of this last condition is often underrated; but it stands out prominently when we look at the history of new countries.

is not always rich in new countries which have no good access to the markets of the old world.

It is commonly said that wherever there is abundance of good land to be had free of rent, and the climate is not unhealthy, the real earnings of labour and the interest on capital must both be high. But this is only partially true. The early colonists of America lived very hardly. Nature gave them wood and meat almost free: but they had very few of the comforts and luxuries of life. And even now there are, especially in South America and Africa, many places to which nature has been abundantly generous, which are nevertheless shunned by labour and capital, because they have no ready communications with the rest of the world. On the other hand high rewards may be offered to capital and labour by a mining district in the midst of an alkaline desert, when once communications have been opened up with the outer world, or again by a trading centre on a barren sea-coast; though, if limited to their own resources, they could support but a scanty population, and that in abject poverty. And the splendid markets which the old world has offered to the products of the new, since the growth of steam communication have rendered North America, Australia and parts of Africa and South America, the richest large fields for the employment of capital and labour that there have ever been.

Old countries offer a market for mortgages of the future incomes of a new country.

But after all the chief cause of the modern prosperity of new countries lies in the markets that the old world offers, not for goods delivered on the spot, but for promises to deliver goods at a distant date. A handful of colonists having assumed rights of perpetual property in vast tracts of rich land, are anxious to reap in their own generation its future fruits; and as they cannot do this directly,

they do it indirectly, by selling in return for the ready goods of the old world promises to pay much larger quantities of the goods that their own soil will produce in a future generation. In one form or another they mortgage their new property to the old world at a very high rate of interest. Englishmen and others, who have accumulated the means of present enjoyment, hasten to barter them for larger promises in the future than they can get at home: a vast stream of capital flows to the new country, and its arrival there raises the rate of wages very high. The new capital filters but slowly towards the outlying districts: it is so scarce there, and there are so many persons eager to have it, that it often commands for a long time two per cent. a month, from which it falls by gradual stages down to six, or perhaps even five per cent., a year. For the settlers being full of enterprise, and seeing their way to acquiring private title-deeds to property that will shortly be of great value, are eager to become independent undertakers, and if possible employers of others; so wage-earners have to be attracted by high wages, which are paid in a great measure out of the commodities borrowed from the old world on mortgages, or in other ways.

and the consequent influx of capital into the latter

raises daily wages very high:

It is, however, difficult to estimate exactly the real rate of wages in outlying parts of new countries. The workers are picked men with a natural bias towards adventure; hardy, resolute, and enterprising; men in the prime of life, who do not know what illness is; and the strain of one kind and another which they go through, is more than the average English, and much more than the average European labourer could sustain. There are no poor among them, because there are none who are weak: if anyone becomes ailing, he is forced to retire to some more thickly-peopled place where there is less to be earned, but where also a quieter and less straining life is possible. Their earnings are very high if reckoned in money; but they have to buy at very high prices, or altogether dispense with, many of the comforts and luxuries which they would have obtained freely, or at low prices, if they had lived in more settled places. Many of these things however meet only artificial wants; and they can be easily foregone, where no one has them and no one expects them.

but labour is efficient, and therefore not dear.

As population increases, the best situations being already occupied, nature gives generally less return of raw produce to the marginal effort of the cultivators; and this tends a little to lower wages. But even in agriculture the law of increasing return is constantly contending with that of diminishing return, and many of the lands

As time goes on, though the tendency to diminishing return

VI, XII, 1.

may not be acting very strongly,

which were neglected at first give a generous response to careful cultivation; and meanwhile the development of roads and railroads, and the growth of varied markets and varied industries, render possible innumerable economies in production. Thus the tendencies to increasing and diminishing return appear pretty well balanced, sometimes the one, sometimes the other being the stronger.

If labour and capital increase at equal rates; and if, taking one thing with another, the law of production is that of constant return, there will be no change in the reward to be divided between a dose of capital and labour; that is, between capital and labour working together in the same proportions as before; there need not therefore be any change in wages or interest.

If however capital increases much faster than labour, the rate of interest is likely to fall; and then the rate of wages will probably rise at the expense of the share of a given quantum of capital. But yet the aggregate share of capital may increase faster than the aggregate share of labour.[1]

the influx of capital becomes relatively slower and wages tend to fall.

But whether the law of production of commodities be one of constant return or not, that of the production of new title-deeds to land is one of rapidly diminishing return. The influx of foreign capital, though perhaps as great as ever, becomes less in proportion to the population; wages are no longer paid largely with commodities borrowed from the old world : and this is the chief reason of the subsequent fall in the necessaries, comforts and luxuries of life which can be earned by work of a given efficiency. But two other causes tend to lower average daily wages measured in money. For, as the comforts and luxuries of civilization increase, the average efficiency of labour is generally lowered by the influx of immigrants of a less sturdy character than the earlier settlers : and

[1] Suppose for instance that an amount of capital, c, co-operating with an amount of labour, l, had raised a product $4p$; of which p goes as interest to capital, and the remaining $3p$ to labour. (The labour is of many grades, including management, but it is all referred to a common standard in a day's unskilled labour of given efficiency : see above IV. III. 8.) Suppose that the quantity of labour has doubled, and that of capital has quadrupled : while the absolute efficiency in production of any given amount of each of the agents has not changed. Then we may expect $4c$ in co-operation with $2l$ to produce $2 \times 3p + 4p = 10p$. Now suppose the rate of interest, *i.e.* the reward for any quantum of capital (exclusive that is of the work of management etc.) to have fallen to two-thirds of its original amount; so that $4c$ receives only $\frac{8}{3}p$ instead of $4p$ as interest; then there will be left for labour of all kinds $7\frac{1}{3}p$ instead of $6p$. The amount, that goes to each quantum of capital, will have decreased; and that which goes to each quantum of labour, will have increased. But the aggregate amount that goes to capital will have increased in the ratio of 8 : 3; while that which goes to labour will have increased in the lower ratio of 22 : 9.

It is best in such matters to isolate *interest*, but, of course, we might have spoken of profits instead of interest, and contrasted the share of capitalists (rather than of capital) with that of hired labour.

many of these new comforts and luxuries do not enter directly into money wages, but are an addition to it.[1] VI, XII, 2, 3.

England's present industrial problems are a development of those of the eighteenth century.

§ 2. England's present economic condition is the direct result of tendencies to production on a large scale, and to wholesale dealings in labour as well as in goods which had long been slowly growing; but which in the eighteenth century received a twofold impetus from mechanical inventions, and the growth of consumers beyond the seas, who imported large quantities of goods of the same pattern. Then were the first beginnings of machine made interchangeable parts, and the application of special machinery to make special machinery for use in every branch of industry. Then first was seen the full force which the law of increasing return gives in a manufacturing country with localized industries and large capitals; particularly when many of the large stocks of capital are combined together either into Joint-stock or Regulated companies, or into modern Trusts. And then began that careful "grading" of goods for sale in distant markets, which has already led to national and even international speculative combinations in produce markets and stock-exchanges; and the future of which, no less than that of more lasting combinations among producers, whether undertakers of industry or working men, is the source of some of the gravest practical problems with which the coming generation will have to deal.

The key-notes of the modern movement.

They key-notes of the modern movement are the reduction of a great number of tasks to one pattern; the diminution of friction of every kind which might hinder powerful agencies from combining their action and spreading their influence over vast areas; and the development of transport by new methods and new forces. The macadamized roads and the improved shipping of the eighteenth century broke up local combinations and monopolies, and offered facilities for the growth of others extending over a wider area: and in our own age the same double tendency is resulting from every new extension and cheapening of communication by land and sea, by printing-press and telegraph and telephone.

In the eighteenth

§ 3. But though in the eighteenth century, as now, the real national dividend of England depended much on the action of the

[1] We took account of them when arriving at the conclusion that the tendency to increasing return would on the whole countervail that to diminishing return: and we ought to count them in at their full value when tracing the changes in real wages. Many historians have compared wages at different epochs with exclusive reference to those things which have always been in common consumption. But from the nature of the case, these are just the things to which the law of diminishing return applies, and which tend to become scarce as population increases, and the view thus got is therefore one-sided and misleading in its general effect.

VI, XII, 3.

century foreign trade affected chiefly that part of the national dividend which consisted of comforts and luxuries.

law of increasing return with regard to her exports, the mode of dependence has very much changed. Then England had something approaching to a monopoly of the new methods of manufacture; and each bale of her goods would be sold—at all events when their supply was artificially limited—in return for a vast amount of the produce of foreign countries. But, partly because the time was not yet ripe for carrying bulky goods great distances, her imports from the far-east and the far-west consisted chiefly of comforts and luxuries for the well-to-do; they had but little direct effect in lowering the labour-cost of necessaries to the English workman. Indirectly indeed her new trade lowered the cost of hardware, clothing and such other English manufactures as he consumed; because the production on a large scale of these things for consumers beyond the sea cheapened them for him. But it had very little effect on the cost of his food; and that was left to rise under the tendency to diminishing return, which was called into action by the rapid increase of population in new manufacturing districts where the old customary restraints of a narrow village life did not exist. A little later the great French war, and a series of bad harvests, raised that cost to much the highest point it has ever reached in Europe.

But now it gives England an immense command over necessaries.

But gradually the influence of foreign trade began to tell on the cost of production of our staple food. As the population of America spread westward from the Atlantic, richer and still richer wheat soils have come under cultivation; and the economies of transport have increased so much, especially in recent years, that the total cost of importing a quarter of wheat from the farms on the outskirts of cultivation has diminished rapidly, though the distance of that margin has been increasing. And thus England has been saved from the need of more and more intensive cultivation. The bleak hill-sides, up which the wheat-fields were laboriously climbing in Ricardo's time, have returned to pasture; and the ploughman works now only where land will yield plentiful returns to his labour: whereas if England had been limited to her own resources, he must have plodded over ever poorer and poorer soils, and must have gone on continually reploughing land that had already been well ploughed, in the hope of adding by this heavy toil an extra bushel or two to the produce of each acre. Perhaps in an average year now, the ploughing which only just pays its expenses, the ploughing "on the margin of cultivation," gives twice as much produce as it gave in Ricardo's time, and fully five times as much as it would have given now if with her present population England had been compelled to raise all her own food.

England has gained less than at first appears from the recent improvements in manufactures.

§ 4. Every improvement in the manufacturing arts increased England's power of meeting the various wants of backward countries; so that it answered their purpose to divert their energies from making things by hand for their own use, to growing raw material with which to buy manufactures from her. In this way the progress of invention opened a wider field for the sale of her special products, and enabled her more and more to confine her own production of food to conditions under which the law of diminishing return did not make itself much felt. But this good fortune has been short-lived. Her improvements have been followed, and latterly often anticipated, by America and Germany and other countries: and her special products have lost nearly all their monopoly value. Thus the amount of food and other raw material which can be bought in America with a ton of steel cannot be more than the produce of as much capital and labour as would make a ton of steel there by the new processes; and therefore it has fallen as the efficiency of English and American labour in making steel has increased. It is for this reason, as well as because of the heavy tariffs levied on her goods by many countries, that in spite of England's large trade, the progress of invention in the manufacturing arts has added less than might have been otherwise expected to her real national dividend.

Her highest gains have come from the cheapening of transport of various kinds.

It is no slight gain that she can make cheaply clothes and furniture and other commodities for her own use: but those improvements in the arts of manufacture which she has shared with other nations, have not directly increased the amount of raw produce which she can obtain from other countries with the product of a given quantity of her own capital and labour. Probably more than three-fourths of the whole benefit she has derived from the progress of manufactures during the nineteenth century has been through its indirect influences in lowering the cost of transport of men and goods, of water and light, of electricity and news: for the dominant economic fact of our own age is the development not of the manufacturing, but of the transport industries. It is these that are growing most rapidly in aggregate volume and in individual power, and which are giving rise to the most anxious questions as to the tendencies of large capitals to turn the forces of economic freedom to the destruction of that freedom: but, on the other hand, it is they also which have done by far the most towards increasing England's wealth.

Some of the influences

§ 5. Thus the new economic age has brought with it great changes in the relative values of labour and the chief requisites of life; and

VI, XII, 5.

of progress on the normal labour-values: firstly, of the chief requisites of a civilized life, viz. corn,

many of these changes are of a character which could not have been anticipated at the beginning of last century. The America then known was ill-suited for growing wheat; and the cost of carrying it great distances by land was prohibitive. The labour value of wheat —that is the amount of labour which will purchase a peck of wheat —was then at its highest point, and now is at its lowest. It would appear that agricultural wages have been generally below a peck of wheat a day; but that in the first half of the eighteenth century they were about a peck, in the fifteenth a peck and a half or perhaps a little more, while now they are two or three pecks. Prof. Rogers's estimates for the middle ages are higher: but he seems to have taken the wages of the more favoured part of the population as representative of the whole. In the middle ages, even after a fairly good harvest, the wheat was of a lower quality than the ordinary wheat of to-day; while after a bad harvest much of it was so musty that now-a-days it would not be eaten at all; and the wheat seldom became bread without paying a high monopoly charge to the mill belonging to the lord of the manor.

meat,

It is true that, where population is very sparse, nature supplies grass and therefore animal food almost *gratis*; and in South America beggars pursue their calling on horseback. During the middle ages however the population of England was always dense enough to give a considerable labour value to meat, though it was of poor quality. For cattle, though only about a fifth as heavy as now, had very large frames: their flesh was chiefly in those parts from which the coarsest joints come; and since they were nearly starved in the winter and fed up quickly on the summer grass, the meat contained a large percentage of water, and lost a great part of its weight in cooking. At the end of the summer they were slaughtered and salted: and salt was dear. Even the well-to-do scarcely tasted fresh meat during the winter. A century ago very little meat was eaten by the working classes; while now, though its price is a little higher than it was then, they probably consume more of it, on the average, than at any other time in English history.

house-room,

Turning next to the rent of house-room, we find that ground-rents in town have risen, both extensively and intensively. For an increasing part of the population is living in houses on which ground-rents at an urban scale have to be paid, and that scale is rising. But house rent proper, that is what remains of the total rent after deducting the full rental value of the ground, is probably little, if at all, higher than at any previous time for similar accommodation; for the rate of profits on the turnover which is earned by capital

engaged in building is now low, and the labour cost of building materials has not much altered. And it must be remembered that those who pay the high town rents get in return the amusements and other advantages of modern town life, which many of them would not be willing to forego for the sake of a much greater gain than their total rent. VI, XII, 5.

The labour value of wood, though lower than at the beginning of the century, is higher than in the middle ages: but that of mud, brick or stone walls has not much changed; while that of iron—to say nothing of glass—has fallen much.

And indeed the popular belief that house rent proper has risen, appears to be due to an imperfect acquaintance with the way in which our forefathers were really housed. The modern suburban artisan's cottage contains sleeping accommodation far superior to that of the gentry in the middle ages; and the working classes had then no other beds than loose straw, reeking with vermin, and resting on damp mud floors. Even these were probably less unwholesome, when bare and shared between human beings and live stock, than when an attempt at respectability covered them with rushes, which were nearly always vile with long accumulated refuse: but it is undeniable that the housing of the very poorest classes in our towns now is destructive both of body and soul; and that with our present knowledge and resources we have neither cause nor excuse for allowing it to continue.[1]

Fuel, like grass, is often a free gift of nature to a sparse population; and during the middle ages the cottagers could generally, though not always, get the little brushwood fire needed to keep them warm as they huddled together round it in huts which had no chimney through which the heat could go to waste. But as population increased the scarcity of fuel pressed heavily on the working classes, and would have arrested England's progress altogether, had not coal been ready to take the place of wood as fuel for domestic purposes, as well as for smelting iron. It is now so cheap that even the comparatively poor can keep themselves warm indoors without living in an unwholesome and stupefying atmosphere. fuel,

This is one of the great services that coal has wrought for modern civilization. Another is to provide cheap underclothing, without which cleanliness is impossible for the masses of the people in a cold clothing,

[1] The evils of the past were however greater than is commonly supposed. See *e.g.* the striking evidence of the late Lord Shaftesbury and of Miss Octavia Hill upon the Commission on Housing of 1885. London air is full of smoke; but it is probably less unwholesome than it was before the days of scientific sanitation, even though the population was then relatively small.

VI, XII, 6.

climate: and that is perhaps the chief of the benefits that England has gained from the direct application of machinery to making commodities for her own use. Another, and not less important service, is to provide abundant water, even in large towns;[1] and another to supply, with the aid of mineral oil, that cheap and artificial light which is needed not only for some of man's work, but, what is of higher moment, for the good use of his evening leisure. To this group of requisites for a civilized life, derived from coal on the one hand, and modern means of transport on the other, we must add, as has just been noticed, the cheap and thorough means of communication of news and thought by steam-presses, by steam-carried letters and steam-made facilities for travel. These agencies, aided by electricity, are rendering possible the civilization of the masses in countries the climate of which is not so warm as to be enervating; and are preparing the way for true self-government and united action by the whole people, not merely of a town such as Athens, Florence or Bruges, but a broad country, and even in some respects of the whole civilized world.[2]

water, light, news and travel.

The influence of progress on the values of the chief agents of production:

§ 6. We have seen that the national dividend is at once the aggregate net product of, and the sole source of payment for, all the agents of production within the country; that the larger it is, the larger, other things being equal, will be the share of each agent of production, and that an increase in the supply of any agent will generally lower its price, to the benefit of other agents.

it has sometimes lowered the value of English agricultural land,

This general principle is specially applicable to the case of land. An increase in the amount of productiveness of the land that supplies any market redounds in the first instance to the benefit of those capitalists and workers who are in possession of other agents of production for the same market. And the influence on values which has been exerted in the modern age by the new means of transport is nowhere so conspicuous as in the history of land; its value rises with every improvement in its communications with markets in which its produce can be sold, and its value falls with every new access to its own markets of produce from more distant places. It is not very long ago that the home counties were full of fears that the making of good roads would enable the more distant parts of England to compete with them in supplying London with food; and now the differential advantages of English farms are in some

[1] Primitive appliances will bring water from high ground to a few public fountains: but the omnipresent water supply which both in its coming and its going performs essential services for cleanliness and sanitation, would be impossible without coal-driven steam-pumps and coal-made iron pipes.

[2] See Appendix A, especially § 6.

respects being lowered by the importation of food that has travelled on Indian and American railroads, and been carried in ships made of steel and driven by steam turbines.

but not of agricultural and urban land taken together.

But as Malthus contended, and Ricardo admitted, anything that promotes the prosperity of the people promotes also in the long run that of the landlords of the soil. It is true that English rents rose very fast when, at the beginning of last century, a series of bad harvests struck down a people that could not import their food; but a rise so caused could not from the nature of the case have gone very much further. And the adoption of free trade in corn in the middle of the century, followed by the expansion of American wheat-fields, is rapidly raising the real value of the land urban and rural taken together; that is, it is raising the amount of the necessaries, comforts and luxuries of life which can be purchased by the aggregate rental of all the landowners urban and rural taken together.[1]

Progress may lower the value of the appliances of production where this can be separated from that of their sites;

§ 7. But though the development of the industrial environment tends on the whole to raise the value of land, it more often than not lessens the value of machinery and other kinds of fixed capital, in so far as their value can be separated from that of the sites on which they rest. A sudden burst of prosperity may indeed enable the existing stock of appliances in any trade to earn for a time a very high income. But things which can be multiplied without limit cannot retain for long a scarcity value; and if they are fairly durable, as for instance ships and blast furnaces and textile machinery, they are likely to suffer great depreciation from the rapid progress of improvement.

but not if the value of their sites is reckoned in.

The value of such things as railways and docks however depends in the long run chiefly on their situation. If that is good, the progress of their industrial environment will raise their net value even after allowance has been made for the charges to which they may be put in keeping their appliances abreast of the age.[2]

[1] Mr. W. Sturge (in an instructive paper read before the Institute of Surveyors, Dec. 1872) estimates that the agricultural (money) rent of England doubled between 1795 and 1815, and then fell by a third till 1822; after that time it has been alternately rising and falling; and it is now about 45 or 50 millions as against 50 or 55 millions about the year 1873, when it was at its highest. It was about 30 millions in 1810, 16 millions in 1770, and 6 millions in 1600. (Compare Giffen's *Growth of Capital*, ch. v., and Porter's *Progress of the Nation*, Sect. II. ch. I.) But the rental of urban land in England is now much greater than the rent of agricultural land: and in order to estimate the full gain of the landlords from the expansion of population and general progress, we must reckon in the values of the land on which there are now railroads, mines, docks, etc. Taken all together, the money rental of England's soil is more than twice as high, and its real rental is perhaps four times as high, as it was when the corn laws were repealed.

[2] Of course there are exceptions. Economic progress may take the form of building new railways that will draw off much of the traffic of some of those already existing, or of increasing the size of ships till they can no longer enter docks the entrance to which is through shallow waters.

VI, XII, 8.

It has greatly increased the supply of capital. The growth of wealth is promoted by man's increased willingness to sacrifice the present for the future,

§ 8. Political Arithmetic may be said to have begun in England in the seventeenth century; and from that time onwards we find a constant and nearly steady increase in the amount of accumulated wealth per head of the population.[1]

Man, though still somewhat impatient of delay, has gradually become more willing to sacrifice ease or other enjoyment in order to obtain them in the future. He has acquired a greater "telescopic" faculty; that is, he has acquired an increased power of realizing the future and bringing it clearly before his mind's eye: he is more prudent, and has more self-control, and is therefore more inclined to estimate at a high rate future ills and benefits—these terms being used broadly to include the highest and lowest affections of the human mind. He is more unselfish, and therefore more inclined to work and save in order to secure a future provision for his family; and there are already faint signs of a brighter time to come, in which there will be a general willingness to work and save in order to increase the stores of public wealth and of public opportunities for leading a higher life.

in spite of a slackening in his willingness to work very long hours.

But though he is more willing than in earlier ages to incur present ills for the sake of future benefits, it is doubtful whether we can now trace a continued increase in the amount of exertion which he is willing to undergo for the sake of obtaining positive pleasures, whether present or future. During many generations the industry of the western world has steadily become more sedulous: holidays have diminished, the hours of work have increased, and people have from choice or necessity contented themselves with less and less search for pleasure outside their work. But it would seem that this movement has reached its maximum, and is now declining. In all grades of work except the very highest, people are getting to prize relaxation more highly than before, and are becoming more impatient of the fatigue that results from excessive strain; and they are perhaps on the whole less willing than they used to be to undergo the constantly increasing "discommodity" of very long hours of work, for the sake of obtaining present luxuries. These causes would make them less willing than before to work hard in order to provide against distant needs, were it not that there is an even more rapid increase in their power of realizing the future, and perhaps—though this is more doubtful—in their desire for that social distinction which comes from the possession of some small store of accumulated wealth.

This increase of capital per head tended to diminish its marginal

[1] See IV. VII.

Recent fluctuations in the rate of interest.

utility; and therefore the rate of interest on new investments fell, though not uniformly. It was reported to be 10 per cent. during a great part of the middle ages; but it fell to 3 per cent. in the earlier half of the eighteenth century. The subsequent vast industrial and political demand for capital raised it again, and it was relatively high during the great war. It fell when the political drain had ceased, the gold supply at the time being very small; but it rose in the third quarter of last century, when new gold abounded, and capital was much needed for railways and the development of new countries. After 1873 an era of peace, combined with a slackening of the gold supply, lowered interest; but now it is rising again, partly in consequence of an increased gold supply.[1]

There is a relative fall in the earnings of trained ability.

§ 9. The growth of general enlightenment and of a sense of responsibility towards the young has turned a great deal of the increasing wealth of the nation from investment as material capital to investment as personal capital. There has resulted a largely increased supply of trained abilities, which has much increased the national dividend, and raised the average income of the whole people: but it has taken away from these trained abilities much of that scarcity value which they used to possess, and has lowered their earnings not indeed absolutely, but relatively to the general advance; and it has caused many occupations, which not long ago were accounted skilled and which are still spoken of as skilled, to rank with unskilled labour as regards wages.

A striking instance is that of writing. It is true that many kinds of office work require a rare combination of high mental and moral qualities; but almost any one can be easily taught to do the work of a copying clerk, and probably there will soon be few men or women in England who cannot write fairly well. When all can write, the work of copying, which used to earn higher wages than almost any kind of manual labour, will rank among unskilled trades. In fact the better kinds of artisan work educate a man more, and will be better paid than those kinds of clerk's work which call for neither judgment nor responsibility. And, as a rule, the best thing that an artisan can do for his son is to bring him up to do thoroughly the work that lies at his hand, so that he may understand the mechanical, chemical or other scientific principles that bear upon it; and may enter into the spirit of any new improvement that may be made in it. If his son should prove to have good natural abilities, he is far more likely to rise to a high position in the world from the bench of an artisan than from the desk of a clerk.

[1] See above VI. vi. 7.

VI, XII, 9.

Earnings in old and familiar skilled occupations tend to fall relatively to those in new.

Again a new branch of industry is often difficult simply because it is unfamiliar; and men of great force and skill are required to do work, which can be done by men of ordinary capacity or even by women and children, when the track has once been well beaten: its wages are high at first, but they fall as it becomes familiar. And this has caused the rise of average wages to be underrated, because it so happens that many of the statistics, which seem typical of general movements of wages, are taken from trades which were comparatively new a generation or two ago, and are now within the grasp of men of much less real ability than those who pioneered the way for them.[1]

The consequence of such changes as these is to increase the number of those employed in occupations which are called skilled, whether the term is now properly applied or not: and this constant increase in the numbers of workers in the higher classes of trades has caused the average of all labour to rise much faster than the average of representative wages in each trade.[2]

Artisans' wages rose relatively to those of

In the middle ages, though some men of great ability remained artisans all their lives, and became artists; yet as a class the artisans ranked more nearly with the unskilled labourers than they do now. At the beginning of the new industrial era in the middle of the eighteenth century the artisans had lost much of their old artistic traditions and had not yet acquired that technical command over their instruments, that certainty and facility in the exact performance of difficult tasks which belong to the modern skilled artisan. A change set in early in last century, and observers were struck by the social gulf that was opening out between skilled and unskilled labour; and the rise of the wages of the artisan, to about double

[1] Comp. IV. VI. 1, 2; and IX. 6. As the trade progresses, improvements in machinery are sure to lighten the strain of accomplishing any given task; and therefore to lower task wages rapidly. But meanwhile the pace of the machinery, and the quantity of it put under the charge of each worker, may be increased so much that the total strain involved in the day's work is greater than before. On this subject employers and employed frequently differ. It is for instance certain that time wages have risen in the textile trades; but the employees aver, in contradiction to the employers, that the strain imposed on them has increased more than in proportion. In this controversy wages have been estimated in money; but when account is taken of the increase in the purchasing power of money, there is no doubt that real efficiency wages have risen; that is, the exertion of a given amount of strength, skill and energy is rewarded by a greater command over commodities than formerly.

[2] This may be made clearer by an example. If there are 500 men in grade A earning 12*s*. a week, 400 in grade B earning 25*s*. and 100 in grade C earning 40*s*., the average wages of the 1000 men are 20*s*. If after a time 300 from grade A have passed on to grade B, and 300 from grade B to grade C, the wages in each grade remaining stationary, then the average wages of the whole thousand men will be about 28*s*. 6*d*. And even if the rate of wages in each grade had meanwhile fallen 10 per cent., the average wages of all would still be about 25*s*. 6*d*., that is, would have risen more than 25 per cent. Neglect of such facts as these, as Sir R. Giffen has pointed out, is apt to cause great errors.

those of ordinary labour. For indeed the great increase in the demand for highly skilled labour, especially in the metal trades, stimulated a rapid absorption of the strongest characters among the labourers and their children into the ranks of the artisans. The breaking down just at that time of the old exclusiveness of the artisans, was making them less than before an aristocracy by birth and more than before an aristocracy by worth; and this rise in the quality of artisans enabled them to maintain a rate of wages much above that of ordinary labour for a long while. But gradually some of the simpler forms of skilled trades began to lose their scarcity value, as their novelty wore off; and at the same time continually increasing demands began to be made on the ability of those in some trades, that were traditionally ranked as unskilled. The navvy for instance, and the agricultural labourer, have been increasingly trusted with expensive and complicated machinery, which had been thought to belong only to the skilled trades, and the real wages of these two representative occupations have risen fast. The rise of wages of agricultural labourers would be more striking than it is, did not the spread of modern notions to agricultural districts cause many of the ablest children born there to leave the fields for the railway or the workshop, to become policemen, or to act as carters or porters in towns. Those who are left behind in the fields have received a better education than was to be had in earlier times; and, though having perhaps less than an average share of natural ability, they earn much higher real wages than their fathers.

unskilled labour at the beginning of century: but now that tendency is reversed.

There are some skilled and responsible occupations, such as those of the head heaters and rollers in iron works, which require great physical strength, and involve much discomfort: and in them wages are very high. For the temper of the age makes those who can do high-class work and can earn good wages easily, refuse to undergo hardship, except for a very high reward.[1]

§ **10.** We may next consider the changes in the relative wages of old and young men, of women and children.

There is a relative fall in the wages of elderly men;

The conditions of industry change so fast that long experience is in some trades almost a disadvantage, and in many it is of far less value than a quickness in taking hold of new ideas and adapting one's habits to new conditions. A man is likely to earn less after

[1] The above brief remarks on the evolution of wages may well be supplemented by Prof. Schmoller's survey in his *Volkswirtschaftslehre*, III. 7 (Vol. II. pp. 259–316). It is specially notable for its breadth of view, and its careful coordination of the material and psychical elements of progress. See also the latter half of his second Book.

VI, XII, 11. he is fifty years old than before he is thirty; and the knowledge of this is tempting artisans to follow the example of unskilled labourers, whose natural inclination to marry early has always been encouraged by the desire that their family expenses may begin to fall off before their own wages begin to shrink.

and a rise in the wages of boys and girls, A second and even more injurious tendency of the same kind is that of the wages of children to rise relatively to those of their parents. Machinery has displaced many men, but not many boys; the customary restrictions which excluded them from some trades are giving way; and these changes, together with the spread of education, while doing good in almost every other direction, are doing harm in this that they are enabling boys, and even girls, to set their parents at defiance and start in life on their own account.

and of women. The wages of women are for similar reasons rising fast relatively to those of men. And this is a great gain in so far as it tends to develop their faculties; but an injury in so far as it tempts them to neglect their duty of building up a true home, and of investing their efforts in the personal capital of their children's character and abilities.

The earnings of exceptional genius are rising, § 11. The relative fall in the incomes to be earned by moderate ability, however carefully trained, is accentuated by the rise in those that are obtained by many men of extraordinary ability. There never was a time at which moderately good oil paintings sold more cheaply than now, and there never was a time at which first-rate paintings sold so dearly. A business man of average ability and average good fortune gets now a lower rate of profits on his capital than at any previous time; while yet the operations, in which a man exceptionally favoured by genius and good luck can take part, are so extensive as to enable him to amass a huge fortune with a rapidity hitherto unknown.

as a result of two causes The causes of this change are chiefly two; firstly, the general growth of wealth; and secondly, the development of new facilities for communication, by which men, who have once attained a commanding position, are enabled to apply their constructive or speculative genius to undertakings vaster, and extending over a wider area, than ever before.

of which one acts almost alone on professional incomes. It is the first cause, almost alone, that enables some barristers to command very high fees; for a rich client whose reputation, or fortune, or both, are at stake will scarcely count any price too high to secure the services of the best man he can get: and it is this again that enables jockeys and painters and musicians of exceptional ability to get very high prices. In all these occupations the highest

incomes earned in our own generation are the highest that the world has yet seen. But so long as the number of persons who can be reached by a human voice is strictly limited, it is not very likely that any singer will make an advance on the £10,000, said to have been earned in a season by Mrs. Billington at the beginning of last century, nearly as great as that which the business leaders of the present generation have made on those of the last.

while both act fully with regard to business incomes.

For the two causes have co-operated to put enormous power and wealth in the hands of those business men of our own generation in America and elsewhere, who have had first-rate genius and have been favoured by fortune. It is true that a great part of these gains have come, in some cases, from the wrecks of the rival speculators who had been worsted in the race. But in others they were earned mainly by the supreme economizing force of a great constructive genius working at a new and large problem with a free hand: for instance the founder of the Vanderbilt family, who evolved the New York Central Railroad system out of chaos, probably saved to the people of the United States more than he accumulated himself.[1]

Progress is fast improving the condition of the great body of the working classes.

§ 12. But these fortunes are exceptional. The diffusion of education, and prudent habits among the masses of the people, and the opportunities which the new methods of business offer for the safe investment of small capitals, are telling on the side of moderate incomes. The returns of the income tax and the house tax, the statistics of consumption of commodities, the records of salaries paid to the higher and the lower ranks of employees of Government and public companies, all indicate that middle class incomes are increasing faster than those of the rich; that the earnings of artisans are increasing faster than those of the professional classes, and that the wages of healthy and vigorous unskilled labourers are increasing faster even than those of the average artisan. The aggregate

[1] It should be noticed however that some of these gains may be traced to those opportunities for the formation of trade combinations engineered by a few able, wealthy and daring men to exploit for their own benefit a great body of manufactures, or the trade and traffic of a large district. That part of this power, which depends on political conditions, and especially on the Protective tariff, may pass away. But the area of America is so large, and its condition so changeful, that the slow and steady-going management of a great joint-stock company on the English plan is at a disadvantage in competition with the vigorous and original scheming, the rapid and resolute force of a small group of wealthy capitalists, who are willing and able to apply their own resources in great undertakings to a much greater extent than is the case in England. The ever-shifting conditions of business life in America enable natural selection to bring to the front the best minds for the purpose from their vast population, almost every one of whom, as he enters on life, resolves to be rich before he dies. The modern developments of business and of business fortunes are of exceptional interest and instruction to Englishmen: but their lessons will be misread unless the essentially different conditions of business life in the old world and the new are constantly borne in mind.

VI, XII, 12. income of the very rich is perhaps not a larger part of the whole in England now than in earlier times. But in America the aggregate value of land is rising fast; the higher strains of the working population are yielding ground to lower strains of immigrants; and great financiers are acquiring vast power: and it may possibly be true that the aggregate income from property is rising relatively to that from labour, and that the aggregate income of the very rich is rising fastest of all.

The inconstancy of employment in modern industry is apt to be exaggerated.

It must be admitted that a rise in wages would lose part of its benefit, if it were accompanied by an increase in the time spent in enforced idleness. Inconstancy of employment is a great evil, and rightly attracts public attention. But several causes combine to make it appear to be greater than it really is.

When a large factory goes on half time, rumour bruits the news over the whole neighbourhood, and perhaps the newspapers spread it all over the country. But few people know when an independent workman, or even a small employer, gets only a few days' work in a month; and in consequence, whatever suspensions of industry there are in modern times, are apt to seem more important than they are relatively to those of earlier times. In earlier times some labourers were hired by the year: but they were not free, and were kept to their work by personal chastisement. There is no good cause for thinking that the mediæval artisan had constant employment. And the most persistently inconstant employment now to be found in Europe is in those non-agricultural industries of the West which are most nearly mediæval in their methods, and in those industries of Eastern and Southern Europe in which mediæval traditions are strongest.[1]

In many directions there is a steady increase in the proportion of employees who are practically hired by the year. This is for instance the general rule in many of those trades connected with transport which are growing fastest; and which are, in some respects, the representative industries of the second half of the nineteenth century, as the manufacturing trades were of the first half. And though the rapidity of invention, the fickleness of fashion, and above

[1] An instance, which came under the present writer's observation, may be mentioned here. In Palermo there is a semi-feudal connection between the artisans and their patrons. Each carpenter or tailor has one or more large houses to which he looks for employment; and so long as he behaves himself fairly well, he is practically secure from competition. There are no great waves of depression of trade; the newspapers are never filled with accounts of the sufferings of those out of work, because their condition changes very little from time to time. But a larger percentage of artisans are out of employment at the best of times in Palermo, than in England in the centre of the worst depression of recent years. Something further is said as to inconstancy of employment below, VI. XIII. 10.

all the instability of credit, do certainly introduce disturbing elements into modern industry; yet, as we shall see presently, other influences are working strongly in the opposite direction, and there seems to be no good reason for thinking that inconstancy of employment is increasing on the whole. VI, XII, 12.

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[*Wherever a reference is given to the contents of a chapter, that indicates that the subject in question is discussed at length in that chapter, and the reader is referred for more details to the analysis of the chapter in the table of contents.*]